United States
Department of
Agriculture

Forest Service
Southern Region

# Appendices
## Final Environmental Impact Statement

FOR THE
Revised Land and Resource Management Plan

# *Jefferson National Forest*

**Management Bulletin R8-MB 115E** **January 2004**

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**Abstract**

This Environmental Impact Statement describes seven alternatives and their environmental consequences for revising the Land and Resource Management Plan (Forest Plan) for the Jefferson National Forest. It includes a "no action" alternative which would continue managing the land and resources of the Jefferson National Forest under the 1985 Forest Plan as amended. Alternative revised management direction is developed for all 723,300 acres of National Forest System ownership on the Jefferson National Forest. Although the George Washington National Forest and Jefferson National Forest have been administratively combined, they continue to have separate Forest Plans. Alternatives have been coordinated with that of the George Washington National Forest, Cherokee National Forest in Tennessee, Chattahoochee-Oconee National Forest in Georgia, National Forests in Alabama, and the Sumter National Forest in South Carolina. The alternatives provide different mixes of goods and services through various goals, objectives, management prescriptions, and standards.

# Appendices
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**Bedford, Bland, Botetourt, Carroll, Craig, Dickenson, Giles, Grayson, Lee, Montgomery, Pulaski, Roanoke, Rockbridge, Scott, Smyth, Tazewell, Washington, Wise, and Wythe Counties in Virginia.**

**Monroe County, West Virginia.**

**Letcher and Pike Counties, Kentucky.**


**Responsible Agency:** **USDA Forest Service**

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# PUBLIC INVOLVEMENT

APPENDIX A



## INTRODUCTION

The Jefferson National Forest began involving citizens in the revision of the 1985 Land and Resource Management Plan in early 1993 by asking them what was needed to change in the Plan. This marked the start of an extraordinary process that none of us imagined would take over 10 years. During this time, 63 citizen workshops, open houses, conferences, seminars, field trips, and a picnic were held directly involving approximately 500 people.

Beginning in 1996, regularly scheduled Interdisciplinary Team meetings, coordination meetings of the Planning Team Leaders across the Southern Appalachians, and Southern Appalachian-wide resource team meetings were opened to the public. This gave citizens unprecedented access to the planning process, affording people the opportunity to share and understand the trials and tribulations of balancing the multiple resources of the Jefferson National Forest along with the diverse and frequently conflicting values of citizens interested in this Forest's management.

Our goals of citizen participation throughout the process were rooted in 36 CFR 219.6. These goals included:

- A dynamic, continuous participation process of active listening, feedback, and dialog results in a broadened information base for collaborative decision-making.
- Long-term relationships based upon trust, respect, and credibility are fostered and maintained.
- The needs, values, attitudes, and beliefs of our diverse constituency are recognized and considered in all management decisions. In turn, people fully understand the management of the Forest and its effect on their livelihoods, values, and qualities of life.
- Citizens understand the Mission of the Forest Service and the purpose and legitimacy of Land Management Planning as described in the National Forest Management Act, and the process as described in the National Environmental Policy Act.
- Citizens understand what problems exist in the current Forest Plan and what problems will be addressed through Revision.
- Citizens understand the key issues used to choose one alternative solution over another and they understand the trade-offs in choosing one alternative over another.

## SUMMARY OF PUBLIC INVOLVEMENT ACTIVITIES

April 23, 1993. Letter to key contacts. Identify major areas of the Plan that need adjustment and should be addressed in the Revision. These comments were used to help establish the "Need For Change" described in the Notice Of Intent. Sent to 40 individuals, groups, state agencies, federal agencies and Congressional representatives.

**SUMMARY OF PUBLIC INVOLVEMENT ACTIVITIES**

March-April 1993 Need For Change discussions held with District employees.

March 22, 1993. Mount Rogers NRA and Wythe Ranger District.

March 26, 1993. Glenwood Ranger District.

April 13, 1993. New Castle Ranger District.

April 23, 1993. Clinch Ranger District.

April 27, 1993. Blacksburg Ranger District.

June 28, 1993 Notice Of Intent published in Federal Register. News Release in local papers.

July-August 1993 Scoping Meetings.

July 13, 1993. Natural Bridge. 4 attendees.

July 15, 1993. Blacksburg. 4 attendees.

July 19, 1993. Wise. 17 attendees.

July 20, 1993. Marion. 28 attendees.

July 27, 1993. New Castle. 11 attendees.

July 28, 1993. Roanoke. 16 attendees.

August 2, 1993. Wytheville. 8 attendees.

September 7, 1993. Formal scoping period ends. 84 letters received.

October 12, 1993. Ecosystem Management Seminar. Marion

October 13, 1993. Ecosystem Management Seminar. Roanoke

October-November 1993. Field trips to look at potential Wild and Scenic River candidates.

November 9, 1993. Meeting to discuss Management Indicator Species with State agencies and Virginia Tech.

Dec 11, 1993 Jefferson Annual Conference. Talk by Nancy Ross: *Revision Process and Timeline*. Talk by Ken Landgraf: *Forest Plan Inventories*. Talk by Dave Olson: *Forest Plan Issues*. Break-out discussions on Issues. Inventories available for review: Roadless, Recreation Opportunity Spectrum, Landtype Associations, Scenery Management System.

Jan 10, 1994 Recreation Opportunity Spectrum/Roadless Seminar. Marion. Discussed criteria for inventory and answered questions on current inventories.

Jan 11, 1994 Recreation Opportunity Spectrum/Roadless Seminar. Roanoke. Discussed criteria for inventory and answered questions on current inventories.

Jan 13, 1994. N.Ross/D.Olson met with New River Valley Planning District Commission, Mount Rogers Planning District Commission, and Soil Conservation Service in Wytheville.

Jan 24, 1994. N.Ross/D.Olson met with 5th Planning District Commission in Roanoke.

Jan 24, 1994. Wildlife Management Seminar. Marion.

Jan 25, 1994. Wildlife Management Seminar. Roanoke.

Feb 7, 1994. Scenery Management System Seminar. Marion.

Feb 8, 1994. Scenery Management System Seminar. Roanoke.

Feb 22, 1994. Recreation Management Seminar. Marion

Feb 23, 1994. Recreation Management Seminar. Roanoke

March 7, 1994. Old Growth Seminar. Marion

March 8, 1994. Old Growth Seminar. Roanoke

June 6-9, 1994. Virginia Natural Heritage met with each district to discuss special interest areas inventory.

August 25, 1994. Southern Appalachian Assessment Public Meeting. Roanoke.

Nov 5, 1994. Jefferson Annual Conference. Roadless, Recreation Opportunity Spectrum, Landtype Association inventories available for review. Answered questions in open format. Most questions about timeline, Southern Appalachian Assessment and Regional Inventory Guidance letter.

Dec 7, 1994. Virginia Dept of Conservation & Recreation in office to look at Roadless and Recreation Opportunity Spectrum inventory with N.Ross/H.Fisher/K.Landgraf. Accompanied by Citizen's Task Force representative and Appalachian Trail Conference representative.

March 1995. Open Houses to view draft inventory maps for Southern Appalachian Assessment. Old Growth, Roadless, and Stage I timber suitability.

March 6, 1995. Abingdon, VA. 21 attendees.

March 9, 1995. New Castle, VA. 26 attendees.

May 25, 1995. Tom Collins arranged a meeting with the U.S. Geologic Service to come visit with interested IDT members on what USGS could input and resources they could provide for Revision.

June 5, 1995. Open Houses to view draft inventory maps for Southern Appalachian Assessment. Old Growth, Roadless, and Stage I timber suitability. Roanoke, VA. 24 attendees.

October 23-27, 1995. Citizens were invited to stop by the office any day this week to look at draft inventory maps. No one took advantage of this opportunity.

1996. Open IDT meetings scheduled 2nd Monday of each month.

February 15, 1996. Annual Conference. Nancy Ross discussed status of Forest Plan Revision. Estimated Notice Of Intent would be released in April.

SUMMARY OF PUBLIC INVOLVEMENT ACTIVITIES

February-March 1996. Management Area Workshops. Citizens invited to delineate management areas.

Feb 26 Clinch RD

Feb 27 Mt Rogers NRA

Mar 5 Glenwood RD

Mar 6 New Castle RD

Mar 12 Wythe RD

Mar 14 Blacksburg RD

Mar 27 Union WVA

August 1, 1996. Notice Of Intent released for Forest Plan Revision.

August 17, 1996. Forest Plan Revision Kick-off Picnic. "Working Together." People worked together to identify issues through discussion of possible alternative themes.

October 26, 1996. Blacksburg Field Trip. Citizens discussed issues as they looked at various activities on the Blacksburg RD.

Nov. 2, 1996. Clinch Field Trip. Citizens discussed issues as they looked at various activities on the Clinch RD.

Nov, 12 and 14, 1996. Inventory Open Houses in Roanoke and Abingdon. An opportunity to look at the latest Revision inventories prior to the end of scoping and to talk to individual IDT members about issues, inventories.

Dec 16, 1996. Partners in Flight evening IDT meeting.

June 23, 1998. Citizen Workshop, Roanoke. Workshop to sketch preliminary land allocations for 4 Southern Appalachian alternative themes.

June 24, 1998. Citizen Workshop, Abingdon. Workshop to sketch preliminary land allocations for 4 Southern Appalachian alternative themes.

October 7, 1998. Open House and Forum about the alternatives, Wytheville Community College

February-June 1999. Citizen Workshops focused on various Issues. Subject matter experts such as Forest Service, State agencies, Virginia Tech, Wildlife Management Institute, and Partners in Flight provided a brief presentation and discussion at the beginning of each workshop. Each workshop included a catered dinner.

February 18 Roadless Issue in Abingdon. 59 participants.

March 30 Wildlife Issue in Roanoke. 53 participants.

April 27 Water Issue in Radford. 18 participants.

May 20 Transportation Issue in Marion. 37 participants.

June 24 Timber/Recreation Issue in Roanoke. 56 participants.

October-December 1999. Rolling Alternative Citizen Workshops. Citizens worked together to develop and make changes to the Rolling Alternative (an alternative designed to "roll" or change as we worked together on it).

October 7 Radford. 30 participants.

October 16 Roanoke. 40 participants.

October 26 Radford. Focused on land allocations of roadless areas. 53 participants.

November 6 Bear Creek/Crawfish Valley Field Trip. Talked specifically about land allocations in the Bear Creek roadless area. 49 participants.

November 18 Hungry Mother State Park. 46 participants.

December 1 Blacksburg. Focused on New River Valley Ranger District land allocations. 46 participants.

December 2 Lexington. Focused on Glenwood Ranger District land allocations. 69 participants.

December 6 Marion. Focused on Mount Rogers National Recreation Area land allocations. 52 participants.

December 7 Wise. Focused on Clinch Ranger District land allocations. 45 participants.

December 8 New Castle. Focused on New Castle Ranger District land allocations. 37 participants.

August 13, 2002. Information comparing the environmental effects of the alternatives is available for review at FS offices.

August 23, 2002. Open House to review updated information and maps for the alternatives. Roanoke.

August 24, 2002. Citizen Workshop in Roanoke to discuss potential changes to the Rolling Alternative.

The *Jefferson Plan Monitor* is the newsletter used to update the public on the progress of the planning process and to announce public meetings. The following issues were published.

Jefferson Plan Monitor, Volume 1, June 1993

Jefferson Plan Monitor, Volume 2, August, 1993

Jefferson Plan Monitor, Volume 3, January, 1994

Jefferson Plan Monitor, Volume 4, March, 1994

Jefferson Plan Monitor, Volume 5, September, 1994

SUMMARY OF PUBLIC INVOLVEMENT ACTIVITIES

Jefferson Plan Monitor, Volume 6, February, 1995

Jefferson Plan Monitor, Volume 7, May, 1995

Jefferson Plan Monitor, Volume 8, October, 1995

Jefferson Plan Monitor, Volume 9, February, 1996

Jefferson Plan Monitor, Volume 10, July, 1996

Jefferson Plan Monitor, Volume 11, October, 1996

Jefferson Plan Monitor, Volume 12, November, 1996

Jefferson Plan Monitor, Volume 13, August, 1997

Jefferson Plan Monitor, Volume 14, May, 1998

Jefferson Plan Monitor, Volume 15, September, 1998

Jefferson Plan Monitor, Volume 16, January, 1999

Jefferson Plan Monitor, Volume 17, August, 1999

Jefferson Plan Monitor, Volume 18, May, 2002

# THE ANALYSIS PROCESS

APPENDIX B



## INTRODUCTION

Land and resource management planning requires that processes formerly used to make individual resource decisions be combined into integrated management decisions. It also requires that mathematical modeling techniques be used to identify the most economically efficient solution to meet the goals and objectives of any alternative. Appendix B presents a technical discussion of the analysis process and computer models used in the Revision planning effort. The appendix focuses on the quantitative methods used to perform the analysis and documents how the analysis was done. The results from the modeling processes are estimates of what can be expected if alternatives are implemented and facilitate comparison of alternatives.

The Forest's major analysis goal is to provide enough information to help decision-makers and the publics determine which combination of goods, services, and land allocations will maximize Net Public Benefits (NPB). The regulations (36 CFR 219) developed under the National Forest Management Act (NFMA) provide the analytical framework within which these decisions are made.

The NFMA and its regulations also state that the requirements of the National Environmental Policy Act (NEPA) and its regulations (40 CFR 1500-1508) must be applied in this analytic process. The NEPA regulations require that the environmental effects of a proposed action and alternatives to that proposed action must be disclosed in an Environmental Impact Statement (EIS).

Information presented in this chapter supplements the broader and less technical descriptions included in the body of the EIS. This discussion includes basic assumptions, modeling components and inputs, rules, methods, and constraints. Additional information and documents used in the analysis process are contained in the planning process records. The planning record in its entirety is incorporated here by reference.

## FRAMEWORK OF THE PLANNING PROCESS

The general planning process described in 36 CFR 219.12 was used to guide the revision of the Jefferson National Forest Land and Resource Management Plan. This 10-Step process is described briefly below, followed by a more detailed discussion of the analytical processes used in Steps 3, 4, and 6.

**STEP 1, Identification of purpose and need: Issues, Concerns, and Opportunities**. The Forest Interdisciplinary Team assessed changes in public issues, management concerns, and resource use and development opportunities since the Plan was initially developed and subsequently amended. Appendix A of this EIS documents this step.

**STEP 2, Planning Criteria**. Criteria are designed to guide the collection and use of inventory data and information; the analysis of the management situation; and the design, formulation, and evaluation of alternatives. This step establishes guidelines for accomplishing the next five steps. Planning criteria are based on:

- Laws, executive orders, regulations and agency policy as set forth in the Forest Service Manual

FRAMEWORK OF THE PLANNING PROCESS

- Goals and objectives in the USDA Forest Service's Strategic Plan.
- Recommendations and assumptions developed from public issues, management concerns, and resource use and development opportunities.
- The plans and programs of other federal agencies, state and local governments, and Indian tribes.
- Ecological, technical and other factors.
- The resource integration and management requirements in 36 CFR 219.13 through 219.27.
- Alternatives that are technically possible to implement.
- Alternatives that meet management requirements or standards.
- Various levels of multiple-use objectives and outputs achieved.

**STEP 3, Inventory Data And Information Collection** - The kind of data and information needed is determined in Step 2 based on the issues, concerns, and opportunities identified and the resulting assessment of the management situation and determination of what needs to change. Data collection is part of normal Forest operations. Existing data is used whenever possible and supplemented with new data, when practicable. Data accuracy is continually evaluated. Much of this data and background documentation is on file in the planning records on file in the Supervisor's Office.

**STEP 4, Analysis of the Management Situation** - This step describes the existing situation on the Forest and determines if there is a need to change current management direction. It examines supply potentials and market assessments for goods and services, assesses demand for goods and services from National Forest lands, and determines suitability and feasibility for meeting needs. This information provides the basis for formulating an appropriate range of reasonable alternatives.

**STEP 5, Formulation of Alternatives** - A reasonable range of alternatives is formulated according to NEPA procedures. Alternatives are formulated to assist in identifying one that comes nearest to maximizing net public benefits (NPB). They provide for the resolution of significant issues and concerns identified in Step 1. Chapter 2 of the EIS describes the formulation of alternatives for the Jefferson National Forest in more detail.

The alternatives reflect a range of resource management programs. Each identified major public issue and management concern is addressed in different ways in the alternatives. The programs and land allocations in each alternative represent the most cost-efficient way of attaining the goals and objectives for that alternative. Both priced and non-priced goods and services (outputs) are considered in formulating each alternative.

**STEP 6, Estimated Effects of Alternatives** - The physical, biological, economic and social effects of implementing each alternative are described in Chapter 3 of the EIS in an effort to evaluate how well each alternative responds to issues, concerns and opportunities and what the potential impacts to resources might be.

**STEP 7, Evaluation of Alternatives** - Significant physical, biological, economic and social effects of implementing alternatives are used to evaluate each alternative and compare them with one another. Typically, each alternative can be judged on how it addresses the significant issues, concerns and opportunities (ICO's) identified in Chapter 1 and Appendix A of the EIS. Also, the alternatives are evaluated on how consistent they are with the recommended 1990 RPA program. Appendix H of the EIS presents the possible outputs and activities associated with each alternative.

**STEP 8, Preferred Alternative** - The Forest Supervisor reviews the Interdisciplinary Team evaluation of each alternative and the public issues and concerns. The Forest Supervisor then recommends a preferred alternative to the Regional Forester. The Regional Forester either selects the Forest Supervisor's recommendation, another alternative, or modifies the alternative recommended by the Forest Supervisor. This alternative is described as the Preferred Alternative in this EIS and is displayed as the Proposed Revised Forest Plan. Public comments are solicited and will be considered in the finalizing of the draft Revised Forest Plan and EIS.

**STEP 9, Plan Approval and Implementation** - After the Interdisciplinary Team has reviewed public comments and incorporated any necessary changes into the Final EIS and the Revised Forest Plan, the Regional Forester reviews and approves the Revised Forest Plan and Final Environmental Impact Statement. A Record of Decision documents this step.

**STEP 10, Monitoring and Evaluation** - The Revised Forest Plan establishes a system of measuring, on a sample basis, actual activities and their effects, and compares these results with projections contained in the Revised Forest Plan. Monitoring and evaluation comprises an essential feedback mechanism to ensure the Revised Forest Plan is dynamic and responsive to change. Chapter 5 of the Revised Forest Plan displays the Monitoring and Evaluation program.

## INVENTORY DATA AND INFORMATION COLLECTION (STEP 3)

Several Interdisciplinary Team meetings were held to evaluate what data were needed to address the significant issues, concerns and opportunities identified in Chapter 1 and Appendix A of the EIS. Existing inventories were reviewed and updated and new information needs were identified and collected, if available. Most of the information was stored in databases, spreadsheets and a geographic information system (GIS).

### GIS Data Layers

A geographic information system (GIS) was used to develop the primary Forest Plan revision database. GIS links natural resource tabular information with spatial (map) information. This linkage enabled complex spatial analyses and rapid display for many different physical, biological or administrative resources. The resulting database was used to preliminarily map the allocation of the management prescriptions, analyze suitable timber lands, build the forest planning model Spectrum analysis areas, and perform other analyses for the revision. To develop the database, the following layers were overlaid in GIS:

- **The Continuous Inventory of Stand Condition (CISC)** – the Southern Region's primary forest vegetation and stand inventory information that relates to forest cover type, age, site index, and land classification. The mapping of the management prescriptions for each alternative used CISC data from early 1999 and the identification of Spectrum analysis areas used CISC data from the spring of 2002.
- **Land Status** – This layer contains information on Forest surface ownership and subsurface mineral rights. The lands layer was updated several times throughout the process to incorporate new acquisitions. The latest update for mapping of management prescriptions and Spectrum analyses was the spring of 2002.
- **Slopes** – This layer used Digital Elevation Models (DEMs) to identify areas suitable for group selection. The criteria for being suitable included 0-25% slopes in concentrated areas in close proximity to an existing road network.

INVENTORY DATA AND INFORMATION COLLECTION

ANALYSIS OF THE MANAGEMENT SITUATION

- **Watersheds** – This layer included Hydrologic Unit Code (HUC) mapping at both the fifth and sixth levels.
- **Riparian** – This layer is an approximation of the riparian habitat on the forest. It is impossible to map the true riparian corridor through the use of GIS due to the complexity of slope, vegetation and other factors that help define the corridor. This coverage was generated by buffering perennial streams and lakes by 100 feet for slopes 0-10%, 125 feet for slopes 11-45% and 150 feet for slopes greater than 45%. Intermittent streams were buffered 50 feet for slopes 0-15% and 30 feet + 1.5 (%slope) for slopes greater than 15%.
- **Inventoried Roadless Areas** - Appendix C of the EIS incorporates all the data used in the roadless area evaluations.
- **Developed Recreation Sites**
- **Scenery Management System (SMS)** – This layer addressed the visual resources and included attributes related to scenic integrity, distance zone, scenic attractiveness, and concern level.
- **Recreation Opportunity Spectrum (ROS)** – This layer represented the recreation experience expected in a particular area and included attributes such as rural, roaded natural, semi-primitive motorized and semi-primitive non-motorized.
- **Ecological Land Units** – This layer included attributes such as the Ridge and Valley, Blue Ridge and Cumberland Plateau subsections.
- **Transportation** – This layer included the public and Forest Service roads and trails within the Forest boundary.
- **Special Biological Areas** – This layer included known areas with special biological or zoological resources or rare communities.
- **Old Growth** – This layer included areas identified as meeting the old growth definition and were either field-verified or delineated as probable old growth areas from aerial photographs.
- **Current Plan Management Areas** – This layer included Wilderness and Special Management Areas from the 1985 Jefferson National Forest Plan.
- **Soils**
- **Geology**
- **Cultural Resources** – This layer included areas with special historical or cultural emphases.
- **Streams and Watercourses** – This layer included intermittent and perennial streams, lakes, rivers and ponds.
- **Special Uses** – This layer included existing special use permits and utility corridors.

## ANALYSIS OF THE MANAGEMENT SITUATION (STEP 4)

In addition to the emerging issues, the need for change was identified through the Analysis of the Management Situation for the Jefferson National Forest (AMS) in August, 1996. This analysis considered the results of monitoring and evaluation, other policy and direction since the previous Plan, the 5-Year Review, the current condition of the resources, and supply and demand factors to determine the need for change in management direction, as well as the ability of the planning area covered by the Forest Plan to supply goods and services. It provided a basis for formulating a broad range of

reasonable alternatives. Because the AMS was done in 1996, quantitative estimates were updated with new information as available. The processes and results for the supply and demand analyses are briefly discussed below. The process records contain the full supply and demand analyses.

## Determination of Demand Estimates

### RECREATION

This section provides additional details related to recreation supply and demand that were not covered in Chapter 3 of the EIS. Recreation demands were based on several sources: 1) the findings of the Southern Appalachian Assessment, Outdoor Recreation Demand and Supply in the Region and Roadless Areas and Designated Wilderness; 2) Regional Demand and Supply Projections for Outdoor Recreation (1993 update to the 1989 RPA Assessment) by Donald B.K. English et al.; 3) Draft Virginia Outdoor Plan, SCORP; and 4) Outdoor Recreation in American Life, A National Assessment of Demand and Supply Trends, H. Ken Cordell, 1999.

National Forest recreation visits were estimated based upon data collected through the National Visitor Use Monitoring (NVUM) project. This project was implemented throughout the National Forest System in response to the need to better understand use of and satisfaction with recreation settings and to provide a standard means of quantifying recreation use across the system within a reasonable confidence level. The project was completed for the Jefferson in 2000 and the report was completed in 2001. Basically, it utilized randomly selected stratified sites across the forest in four categories: Day Use Developed (DUD), Overnight Use Developed (OUD), General Forest Area (GFA), and Wilderness (Wild). Both proxy and non-proxy site data was collected. Factors based upon national data were used as multipliers to estimate total visits by category. The spreadsheets used to calculate visits are available in the process records for this plan.

Assumptions by alternative about recreation programs use were based on the overall theme and emphasis of each alternative as stated in its description. These assumptions, in turn, influenced changes in supply and capacity for developed recreation, dispersed recreation, general forest/trails and wilderness across the alternatives. Projected effects by alternative on each recreation category were made. Refer to the paper, "Developed and Dispersed Recreation Assumptions for Forest Plan Alternatives", in the process records for this discussion. In Table B-1, Alternative F represents the 2000 NVUM national forest visits by category. Expected changes by alternative by percent and total visits from Alternative F are shown.

The Jefferson National Forest NVUM data was further refined to RPA activity groups for use in the Present Net Value (PNV) and Jobs/Income calculations for the EIS. The percent breakdown by RPA activity group was done using NVUM survey results from the Jefferson NVUM data, nearby forests, and local experience. Table B-2 shows a summary of the conversion of visits by the NVUM categories to the RPA activity groups for the forest under Alternative F (Current Direction). This summary is based on the spreadsheet, "JNF NVUM Activities by RPA Category ", showing calculations for each activity within the RPA activity groups for each alternative, based on the changes from current direction in Table B-2. Visits were converted to trips and shown by RPA activity for each alternative in Table B-3.

Projections of future use are based upon data from Outdoor Recreation in American life, A National Assessment of Demand and Supply Trends, H. Ken Cordell, Principal Investigator, 1999. Estimates were made for each activity within each group by decade through 2050. The estimates were calculated using projection factors reflecting projected increases or decreases. A spreadsheet calculating projected visits in each activity and groups through 2050 for each alternative is available in the process records for this EIS.

**Table B-1. Recreation Use Estimates by NVUM Category by Alternative**

| Use Category | Alt A | Alt B | Alt D | Alt E | Alt F (current) | Alt G | Alt I |
|---|---|---|---|---|---|---|---|
| **Wilderness (WILD)** | High (+25%) 53,538 | Moderate (+15%) 49,255 | Moderate (+20%) 51,396 | High (+120%) 94,226 | No Increase 42,830 | High (+300%) 128,490 | High (+25%) 53,538 |
| **Developed Day Use (DUDS)** | Moderate (+15%) 547,101 | No Increase 475,740 | No Increase 475,740 | Moderate (+10%) 523,314 | No Increase 475,740 | No Increase 475,740 | Slight (+3 %) 490012 |
| **Overnight Use (OUDS)** | Moderate (+10%) 334,983 | No Increase 304,530 | No Increase 304,530 | Slight (+5%) 319,757 | No Increase 304,530 | No Increase 304,530 | Slight (+3%) 313,666 |
| **General Forest Area (GFA)** | Moderate (+15%) 595,298 | Slight (+2%) 528,003 | Moderate (+10%) 569,415 | Slight (+5%) 543,533 | No Increase 517,650 | Decrease (-15%) 440,003 | Moderate (+10%) 569,415 |
| **Total** | 1,530,920 (+14.2%) | 1,357,528 (+1.3%) | 1,401,081 (+4.5%) | 1,480,830 (+10.4%) | 1,340,750 0% | 1,348,760 (+. 6%) | 1,426,631 (+6.4%) |

Where:

Decrease = __% of total use

No increase = Current use

Slight increase = 1-5% of total use

Moderate increase = 6-20% of total use

High increase = 21% or higher of total use

**Table B-2. RPA Activity Group Summary from NVUM Data for Alternative F (Current)**

| RPA Activity | DUDS | | OUDS | | GFA | | WILD | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| | Percent | M Visits | Percent | M Visits | Percent | M Visits | Percent | M Visits | Visits (M) |
| **Camping, Picnicking, Swimming** | 19.3% | 91.82 | 99.7% | 303.62 | 5.9% | 30.54 | 0.0% | 0 | 425.98 |
| **Mechanical Travel& View-ing Scenery** | 0.0% | 0 | 0.0% | 0 | 36.8% | 190.5 | 0.0% | 0 | 190.5 |
| **Hiking, Horseback Riding, Water Travel** | 0.0% | 0 | 0.0% | 0 | 24.5% | 126.82 | 0.0% | 0 | 126.82 |
| **Winter Sports** | 0.1% | 0.48 | 0.0% | 0 | 0.2% | 1.04 | 0.0% | 0 | 1.51 |
| **Resorts** | 0.0% | 0 | 0.3% | 0.91 | 0.0% | 0 | 0.0% | 0 | 0.91 |
| **Fish & Wild-life** | 46.5% | 221.22 | 0.0% | 0 | 27.2% | 140.8 | 0.0% | 0 | 362.02 |
| **Wilderness** | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 100.0% | 42.83 | 42.83 |
| **Other** | 34.1% | 162.23 | 0.0% | 0 | 5.4% | 27.95 | 0.0% | 0 | 190.18 |
| **Total** | 100.0% | 475.74 | 100.0% | 304.53 | 100.0% | 517.65 | 100.0% | 42.83 | 1340.75 |

**Table B-3. Recreation Trips by RPA Activity Group Summary by Alternative**

| Resource | Alt F | Alt A | Alt B | Alt D | Alt E | Alt G | Alt I |
|---|---|---|---|---|---|---|---|
| **Recreation** | | | | | | | |
| Nonresident Day Use | 66,813 | 68,403 | 67,763 | 69,925 | 74,424 | 68,979 | 71,234 |
| Nonresident Overnight on NF | 49,339 | 50,513 | 50,040 | 51,637 | 54,959 | 50,938 | 52,603 |
| Nonresident Overnight off NF | 72,540 | 74,266 | 73,571 | 75,919 | 80,803 | 74,891 | 77,340 |
| Local Resident Day Use | 199,225 | 203,966 | 202,055 | 208,504 | 221,918 | 205,682 | 212,406 |
| Local Resident Overnight on NF | 20,558 | 21,047 | 20,850 | 21,515 | 22,900 | 21,224 | 21,918 |
| Local Resident Overnight off NF | 32,893 | 33,675 | 33,360 | 34,425 | 36,639 | 33,959 | 35,069 |
| **Wildlife & Fish** | | | | | | | |
| Nonresident Hunting | 10,891 | 12,523 | 11,108 | 11,980 | 11,434 | 9,256 | 11,980 |
| Local Resident Hunting | 14,584 | 16,770 | 14,874 | 16,042 | 15,312 | 12,395 | 16,042 |
| Nonresident Wildlife Viewing | 16,216 | 18,648 | 16,326 | 16,761 | 17,565 | 15,399 | 17,084 |
| Local Resident Wildlife Viewing | 21,715 | 24,972 | 21,861 | 22,445 | 23,521 | 20,620 | 22,878 |
| Nonresident Fishing | 39,888 | 45,870 | 40,073 | 40,813 | 43,413 | 38,499 | 41,732 |
| Local Resident Fishing | 53,413 | 61,424 | 53,662 | 54,652 | 58,134 | 51,553 | 55,883 |

## RANGE

Projections for range were derived from past history of the range program on the forest, the Mount Rogers Planning District Commission, the 1989 Recommended RPA Program (USDA 1990) and the Forest Service Program for Forest and Rangeland Resources (USDA 1995).

There are currently no vacant allotments on the Forest. On the Mount Rogers National Recreation Area there is a waiting list of individuals desiring to apply for National Forest grazing privileges. The list currently has 40 names of individuals who do not currently hold an NRA grazing permit and 18 names of current permittees who would like additional grazing. Several individuals have been on the list since at least 1989. An individual who wishes to graze 20-25 head of livestock (an average herd for the NRA) would spend a minimum of 4-5 years on the waiting list before a permit might come available. Slightly more than 50% of the NRA's permittees are full-time farmers who are likely dependent on their National Forest grazing permits for a portion of their livelihood. The other Districts report that they also have occasional inquiries as to the availability of grazing, although they do not maintain a list of interested parties.

Review of past range reports shows that there has been a small increase in grazed acres since 1986; from 7,530 acres and 6,421 Animal Unit Months (AUMS) to 7,987 acres and 8,972 AUMS in 1996. The number of allotments has increased since 1986 from 11 on 3

ANALYSIS OF THE MANAGEMENT SITUATION

Ranger Districts to a high of 15 on 4 Districts in 1995. The number of allotments has recently decreased to 12 with the consolidation of 4 NRA allotments into 1. The acreage under permit did not change with this consolidation.

DETERMINATION OF DEMAND ESTIMATES

Within the last few years, the National Forests in the southeast have begun a program of issuance of new grazing permits using a competitive bidding system. This system provides a good measure of the demand for the grazing resource on the National Forest. A recent (Dec. 1995) bid opening on the NRA had successful bids ranging from $3.83 to $9.05 per head-month (HM). A Head-Month is one month's use of the range by one adult cow (with or without calf), or one bull, steer, heifer or horse. Eleven grazing tracts were offered for bid at this 1995 bid opening. All of the 11 were bid on, with several tracts receiving 7 or 8 bids. It is likely that $9.05/HM is one of the highest National Forest grazing fees in the nation at this time and is a good indication of the high demand for National Forest grazing privileges in this area. The permittee that holds this lease is from North Carolina and exhausted all possible options for grazing his livestock closer to home before he elected to bring them to the NRA. The NRA currently has permittees from North Carolina and Tennessee as well as from Virginia.

Land use has also changed over much of this area from grazing to Christmas tree farming. These trends are expected to continue well into the future as demand for housing developments, summer cabins, golf courses and tree farms continue. This may explain the rising demand for additional grazing lands on the Jefferson National Forest as shown by the number of respondents and high bid prices received on advertisements for such grazing opportunities, especially within the Mount Rogers NRA. It is expected then to have a gradually increasing demand for grazing on the Jefferson throughout the planning period.

TIMBER

## TIMBER

The demand for timber products was addressed using the 1996 General Technical Report NE-226 "Methodology for Assessing Current Timber Supplies and Product Demands" by Worthington and others. The authors developed the methodology using the Jefferson National Forest market area as a case study. The market area, timber resources, timber demand from the primary wood-processing industry located in the market area, the economic availability of the timber supply under current market conditions and the potential effect of landowner attitudes on available timber supply from nonindustrial private forest lands were described in the report.

The timber market area for the Jefferson National Forest was determined to be generally within an 80-mile radius around the forest's boundary and comprised 121 counties within five states. Within the market area the report stated that there were 634 sawmills and 12 pulp and paper mills that combined consumed 414.4 mmcf (million cubic feet) of roundwood annually. The report estimated that approximately 51 percent of the current sawtimber consumption in the market area is by 79 sawmills that demand high-quality timber resources, 30 to 35 percent is by 134 sawmills that demand average-quality sawtimber and the remaining 13 to 19 percent is by 421 sawmills that process low-quality sawlogs. The estimated economic supply of timber within the market area was between 66-75 percent on nonindustrial private land and around 3 percent on the Jefferson National Forest. The report stated that supply greatly exceeded annual consumption rates (annual demand is 62 percent of net annual growth and 1.4 percent of the total economically available timber supply from all ownerships); however, consumption rates for high-quality sawtimber exceeded growth, suggesting that this demand is under increasing economic pressure.

The Social/Cultural/Economic Report for the Southern Appalachian Assessment, 1996, also addressed questions related to timber supply and demand on a more regional and

national level. Composite board material represented an important emerging industry in the Southern Appalachians. The area with the greatest growth in the composite board production is southwestern Virginia, a region with historically low pulpwood production levels. Prices for the highest quality hardwood sawlogs have risen over the last 20 years while prices for low-quality sawlogs have fallen. While at a regional level, the Forest Service holds 17 percent of timberland, the agency manages 21 percent of all sawtimber, 27 percent of the grade 1 sawtimber and 44 percent of the grade 1 select red oak sawtimber. Pulpwood production has expanded over the last 10 to 15 years with the hardwood market share increasing. Oriented strand board appears to be an important emerging market for timber in the Southern Appalachians. There has been a steady growth in the prices for high-quality hardwood sawlogs; prices for medium-quality sawlogs have been stable and those for low-quality sawlogs have declined.

## MINERALS

Congress passed a law in 1987 that updated and enlarged the Forest Service role in administering surface operations for oil and gas development on National Forest System lands (Federal Onshore Oil and Gas Leasing Reform Act of 1987). The reasonably foreseeable development projected for the Revised Forest Plan was developed based on the law and the implementing regulations, including the 36 CFR 228E regulations for Forest Service review and approval of surface use plans of operations and is discussed in detail in Chapter 3 of the EIS. The reasonably foreseeable development included an estimate of the number of wells, miles of access road and pipeline construction, and acres of clearing for well pads, access roads and pipelines. The development of new gas wells, access roads and associated facilities would occur over 15 years, which is the time span for the Revised Forest Plan. Because of the difference in oil and gas potential between the Clinch Ranger District and the other Ranger Districts, the reasonably foreseeable development on federal oil and gas leases was discussed in two sections: first, the Clinch Ranger District, and secondly, the rest of the Forest.

## WILDERNESS

Appendix C of the EIS contains the roadless area evaluations. One of the three major factors in these evaluations is the identification of need - a consideration of the amount of wilderness already in the area, regionally and nationally.

## WILDLIFE AND FISHERIES

Projections for wildlife and fisheries were developed using data from the Virginia Department of Game and Inland Fisheries and the West Virginia Department of Natural Resources, the 1989 Recommended RPA Program, the Virginia Wildlife-Related Recreation Study (Wright 1989) and the Wildlife-Related Outdoor Recreation and Boating: Their Economic Importance in Virginia (Smith 1993). The Recreation demand projections addressed hunting, fishing and wildlife viewing. Chapter 3 of the EIS discussed trends in certain wildlife demand species, such as deer, turkey, bear, grouse, and others.

### Benchmark Analysis

Benchmark analysis is specified in the NFMA regulations in 36 CFR 219.12(e) as part of the Analysis of the Management Situation. Benchmarks approximate maximum economic and biological resource production opportunities and are useful in evaluating the compatibilities and conflicts between individual resource objectives and in defining the range within which integrated alternatives can be developed. Selection of those benchmarks to develop is dependent upon the revision topics. Benchmarks are primarily modeled in Spectrum by changing the objective function and by adjusting constraints. Because the Spectrum model was developed to primarily model vegetation management through the use of timber sales, three timber-related benchmarks were developed in

BENCHMARK ANALYSIS

addition to one that reflected our current level of management.

The NFMA regulations in 36 CFR 217.27 list management requirements that must be considered in benchmarks. The following basic management requirements were included in all of the benchmark Spectrum models:

- Non-declining flow and long-term sustained yield.
- The Allowable Sale Quantity only generated from tentatively suitable timber lands.
- Water quality and watershed protection.
- Riparian protection.
- Base level of visual resource protection.
- There would be no harvest before the culmination of mean annual increment.

**CUR – Current Level Benchmark**

This benchmark provides for management using the current plan as amended, adjusted to incorporate changes necessary to meet current management direction. The benchmark estimates the capability of the planning areas to provide for a wide range of goods, services, and other uses from the present land allocations. This benchmark was the same as Alternative F and meets all requirements specified in the regulations (36 CFR, Part 219).

**TIM – Maximum Timber Benchmark**

This benchmark was used to identify the timber production potential of the Forest, subject to these specifications:

- The objective function maximizes timber volume in the first five decades, with a rollover to maximize present net value for 15 decades.
- All tentatively suitable acres were included, without any management prescription allocations, so every tentatively suitable acre was eligible for harvest.
- No successional habitat constraints were applied.

**PNV – Maximum Present Net Value Benchmark**

This benchmark was established to estimate the schedule of outputs and costs that would maximize the present net value of timber production without any constraints, subject to these specifications:

- The objective function maximizes net present value over the entire planning horizon.
- All tentatively suitable acres were included, without any management prescription allocations.
- No successional habitat constraints were applied.

**MIN – Minimal Level of Management Benchmark**

This benchmark represents “the minimum level of management which would be needed to maintain and protect the unit as part of the National Forest System together with associated costs and benefits” (36 CFR 219.12(e)(1)(i)). In Chapter 2 of the EIS, it is compared to the management emphasis of Alternative C, which was originally considered

but eliminated from detailed study. Alternative C essentially embodied all of the elements of a minimum level of management benchmark by only providing for the protection of resources and meeting legal requirements. This benchmark shows no commercial timber production or harvest; therefore the ASQ is zero. In this benchmark, no early successional habitat conditions are created.

One of the effects of minimum level management is that we would not be able to meet the habitat needs of those species associated with these habitat elements. Active management will be necessary to restore and maintain desired conditions relative to a number of habitat elements as shown in Table B-4. These habitat elements are important to maintaining viability of associated species.

**Table B-4. Some habitat elements on the Jefferson National Forest that may require active management to restore and maintain desired conditions, and the primary management activities likely to be needed**

| Habitat Element | Primary Management Activities |
|---|---|
| Bogs, Fens, Seeps, Seasonal Ponds | Tree cutting, prescribed burning |
| Glades and Barrens | Tree cutting, prescribed burning |
| Table Mountain Pine Forests | Tree cutting, prescribed burning |
| Grassy Balds | Herbicide application, prescribed burning |
| Shrub Balds | Prescribed burning |
| Canebrakes | Tree cutting, prescribed burning, herbicide application |
| Sandhills | Tree cutting, prescribed burning |
| Wet Savannas and Flatwoods | Tree cutting, prescribed burning |
| Mature Oak Forests | Tree cutting, prescribed burning |
| Mature Yellow Pine Forests | Tree cutting, prescribed burning, tree planting |
| Longleaf Pine Forests | Tree cutting, prescribed burning, tree planting |
| Mountain Longleaf Pine Forests | Tree cutting, prescribed burning, tree planting |
| Early-Successional Forests | Tree cutting |
| High Elevation Early Succession | Tree cutting, prescribed burning |
| Canopy Gaps | Tree cutting |
| Woodlands, Savannas, and Grasslands | Tree cutting, prescribed burning |
| Mixed Landscapes | Tree cutting, prescribed burning |
| Early-Successional Riparian | Tree cutting |

BENCHMARK ANALYSIS

Table B-5 displays some of the distinctive outputs and effects for each benchmark.

LANDS SUITABLE FOR TIMBER PRODUCTION

STAGE I SUITABILITY

**Table B-5. Tradeoffs Among Benchmarks**

| | Current Mgmt (Alt F) | Maximum Timber | Maximum Present Net Value | Minimum Level of Management |
|---|---|---|---|---|
| Allowable Sale Quantity (ASQ), MCF / decade | 49.5 | 123.6 | 107.1 | 0 |
| Long-term Sustained Yield, MCF / year | 4.9 | 22.7 | 19.1 | 0 |
| Suitable Acres | 307,964 | 645,600 | 645,600 | 0 |
| Clearcut Acres, decade 1 | 3,500 | 39,016 | 34,960 | 0 |
| Shelterwood Acres, decade 1 | 17,000 | 0 | 0 | 0 |
| Group Selection Acres, decade 1 | 1,500 | 0 | 0 | 0 |
| Present Net Value (M$) | $2,293 | $2,385 | $2,632 | $974 |
| % Early Successional Acres, end of decade 1 | 3% | 6% | 5% | 0% |
| % Early Successional Acres, end of decade 5 | 3% | 4% | 9% | 0% |
| % Mid to Late Successional Acres, end of decade 1 | 18% | 18% | 18% | 38% |
| % Mid to Late Successional Acres, end of decade 5 | 10% | 16% | 12% | 9% |
| % Late Successional Acres, end of decade 1 | 60% | 61% | 62% | 43% |
| % Late Successional Acres, end of decade 5 | 24% | 9% | 17% | 32% |
| % Old Successional Acres, end of decade 1 | 12% | 8% | 8% | 9% |
| % Old Successional Acres, end of decade 5 | 55% | 16% | 26% | 58% |

### Lands Suitable for Timber Production

During forest land and resource management planning, the Forest Service is required to identify lands unsuited for timber production (16 USC 1604(k); 36 CFR 219.14). This identification process involves three stages of analysis. Stage I analysis identifies lands tentatively suitable for timber production. Stage II analysis is designed to explore the financial aspect of varying intensities of timber management on lands identified as tentatively suitable for timber production from Stage I. Stage III analysis identifies lands as unsuited for timber production under the alternative selected in the revised Forest Land and Resource Management Plan.

## STAGE I: PHYSICAL SUITABILITY

The first stage of the timber suitability analysis addresses the administrative and physical suitability of the land to be managed for the production of timber. Stage I lands unsuitable for timber production included:

- Lands that do not meet the definition of forest land.
- Lands that have been administratively or congressionally withdrawn from timber production by an act of Congress, the secretary of agriculture, or the chief of the Forest Service.
- Forest lands incapable of producing industrial wood.
- Lands where technology is not available to ensure timber production from the land without irreversible soil and water resource damage.
- Lands where there is no reasonable assurance that they can be adequately restocked.
- Lands where there is inadequate information, primarily due to recent acquisition.

The codes in Table B-6 from the Continuous Inventory of Stand Condition database (CISC) were used to define the five categories used to determine the Stage I tentatively suitable lands in Table B-7.

**Table B-6. Definitions Used in Stage I Suitability Analysis**

| Categories of Stage I Unsuitable Lands | CISC Land Class Code |
|---|---|
| **1. Non-Forest Land** | 110 - Lake<br>120 - Reservoir<br>140 - River<br>210 - Cemetery<br>220 - Powerline Right-of-way<br>230 - Road and Railroad Right-of-way<br>240 - Special Use Area<br>240 - Wildlife Clearing<br>260 - Other |
| **2. Withdrawn** | 350 - Designated Wilderness and GIS |
| **3. Incapable** | 900 - Lands Incapable<br>Site Index < 40 |
| **4. Irreversible Damage** | 824 - Sensitive Soils<br>826 - Physical Barriers |
| **5. Can't Restock within 5 Years** | Forest type 99 and stand condition class 15 |

**Table B-7. Stage I Acres Tentatively Suitable for Timber Production**

| Classification | Acres |
|---|---|
| Total National Forest Land | 723,300 |
| Non-forest Land (includes water) | (12,000) |
| Forest Land | 711,300 |
| Forest Land – withdrawn for existing, designated wilderness | (57,800) |
| Forest Land – incapable of producing industrial wood | (3,400) |
| Forest Land – irreversible damage likely to occur; not restockable | (4,300) |
| Forest Land – inadequate information | (200) |
| Tentatively Suitable Forest Lands | 645,600 |

LANDS SUITABLE FOR TIMBER PRODUCTION

## STAGE II: FINANCIAL ANALYSIS

**STAGE II SUITABILITY**

The second stage analysis is designed to explore the financial efficiency of different timber intensities on the lands identified as tentatively suitable for timber production in Stage I. It does not identify any lands as unsuitable for timber production. Stage III analysis considers the results of these financial efficiencies in making the final determination of lands suited for timber production.

**STAGE III SUITABILITY**

The financial analysis identifies the present net value (PNV) for different Spectrum analysis areas. For the purpose of this analysis, PNV is a measure of the discounted timber benefits less the discounted timber management costs, using a 4 percent discount rate. The actual PNV analysis consisted of a Spectrum run which examined all of the silvicultural prescriptions for all of the Spectrum analysis areas. There are many factors that determine the economic efficiency of a timber sale that cannot possibly be modeled using a landscape level planning model such as Spectrum. However, based on this financial analysis, the following primary conclusions were made:

- Clearcutting with natural regeneration has the highest PNV for all analysis areas.
- The analysis areas with the lowest PNV were site index 50 in yellow pine.
- All site index 40 lands were economically inefficient.

Site index 50 lands that were steep (defined by CISC land classes 540 and 800-899) with the exception of forest types 48, 53, 56 and 81 (northern red oak-hickory-yellow pine, white oak-northern red oak-hickory, yellow poplar-white oak-red oak, and sugar maple-beech-yellow birch) were economically inefficient.

## STAGE III—IDENTIFICATION OF SUITABLE ACRES

The third stage analysis is accomplished during the formulation of alternatives (Tables B-8 and B-9). Several criteria were used during this stage to identify lands as unsuitable for timber production:

- Based upon consideration of multiple-use objectives for an alternative, the land is proposed for resource uses that preclude timber production. However, in some management prescriptions that are classified as unsuitable for timber production, timber harvest may occur to meet the desired condition of other resources.
- Other management objectives for an alternative may limit timber production activities to the point where management requirements set forth in 36 CFR 219.27 cannot be met.
- The lands are not cost-efficient, over the planning horizon, in meeting forest objectives, which includes timber production.

**Table B-8. Determination of Lands Suitable for Timber Production from Stage III Analy-**

| ALTERNATIVE | UNSUITABLE LANDS | SUITABLE LANDS | PERCENT SUITABLE |
|---|---|---|---|
| A | 444,847 | 278,453 | 38% |
| B | 473,048 | 250,252 | 35% |
| D | 420,435 | 302,865 | 42% |
| E | 534,709 | 188,591 | 26% |
| F | 421,070 | 302,230 | 42% |
| G | 598,278 | 125,022 | 17% |
| I | 464,403 | 258,897 | 36% |

**Table B-9. Stage III Suitability for All Alternatives**

| Classification for Stage III Suitability | ALT A | ALT B | ALT D | ALT E | ALT F | ALT G | ALT I |
|---|---|---|---|---|---|---|---|
| Tentatively Suitable Forest Land – from Stage I Analysis | 645,600 | 645,600 | 645,600 | 645,600 | 645,600 | 645,600 | 645,600 |
| Lands Withdrawn for Other Resource Purposes - Unsuitable for timber production | (221,600) | (284,400) | (169,600) | (388,200) | (204,900) | (470,300) | (292,600) |
| Semi-Primitive Lands within Suitable Prescriptions | (28,600) | (23,200) | (47,800) | (1,400) | (11,800) | (3,400) | (4,300) |
| Riparian Habitat within Suitable Prescriptions | (45,000) | (39,700) | (50,100) | (28,500) | (44,700) | (18,400) | (39,300) |
| Economically inefficient lands[1] | (71,900) | (48,000) | (75,200) | (38,900) | (82,000) | (28,500) | (50,500) |
| **Total Suitable Land** | **278,500** | **250,300** | **302,900** | **188,600** | **302,200** | **125,000** | **258,900** |

## Estimated Effects of Alternatives (Step 6)

### Analysis Tools Used

The primary tools used to estimate the effects of alternatives include several established computer models, numerous spreadsheets and GIS.

## PRE-SUPPOSE

Pre-Suppose is a program used to query and sort Forest Inventory and Analysis (FIA) data for use in the growth and yield model. The program allows the user to evaluate, select or discard plots that fit desired criteria and create support files to directly be linked into the Suppose interface for the Forest Vegetation Simulator model.

## FOREST VEGETATION SIMULATOR MODEL

The primary tool for estimating growth and yield used in the Spectrum model is the Forest Vegetation Simulator (FVS) model. FVS is an individual-tree, distance-independent, growth and yield model. It has its structural roots in the Stand Prognosis Model developed by Albert Stage from the Intermountain Research Station. Staff at the USFS Forest Management Service Center in Fort Collins have now calibrated many variants of the model to specific geographic areas throughout the United States. Each variant used different species-specific growth and yield equations and assumptions. The Southern Variant was used for developing yield tables for the Spectrum model. The Southeastern and Northeastern Variants were also evaluated for use but the Southern Variant provided the best fit for tree species on the Jefferson National Forest.

FVS allows the user to calculate estimates of forest stand structure and species composition over time and quantify this information to: 1) describe current and future forest stand conditions; 2) simplify complex concepts of forest vegetation into user-defined indices, attributes, etc.; and 3) allow the manager to ask better questions about growth and yield of forested stands and complete analyses to answer those questions. For the purposes of the Southern Appalachian Forest Plan Revisions, Forest Inventory and Analysis (FIA) data for the Southern Region was converted into a format that FVS could use. This data is collected by the Forest Inventory and Analysis Unit of the Southern Research Station for each State on a 10 year cycle in order to provide unbiased, accurate, current, and relevant forest resource information that meets the diverse needs of land stewardship.

Stratification of FIA data was performed based on geological province, forest type, and site index. The dataset from which FIA data could potentially be selected was limited to the Blue Ridge, Ridge and Valley, and/or Cumberland Plateau provinces of Virginia, Kentucky, North Carolina, Tennessee, South Carolina, and Georgia. Forest Type was used to group the data into one of four working groups; upland oak, cove hardwoods, white pine/hemlock, and southern yellow pine. These working groups correspond to analysis area identifiers used in the Spectrum model. Three categories of site indices were used to further stratify the data within these working groups; 50 to 65, 66 to 85, and 86 t0 100. Whenever possible, data selected for a simulation was limited to FIA plots on National Forest System lands in Virginia to simulate conditions on the Jefferson National Forest as closely as possible. For common working group/site index combinations (e.g. upland oak in the 66 to 85 site index group) this resulted in an adequate number of stands to provide statistically sound conclusions. However, in some cases (e.g. southern yellow pine on site index 86 to 100) very few FIA plots were found within those constraints. In such cases, selection criteria were broadened to include first, all of Virginia, then to all of the remaining States until an adequate number of FIA plots meeting the working group/site index criteria were selected.

The FVS model structure contains modules for growing trees, predicting mortality, simulating growth reductions due to stocking, calculating tree volumes, and producing reports. Extensions that simulate the effects of Oak Decline and the Southern Pine Beetle on forested stands are also available for use with the Southern Variant. These Pest Extensions predict the number of events, expected mortality, and residual stand structure and composition. In addition to providing input for the Spectrum model, FVS was used in combination with these pest extensions to disclose impacts to the Forest expected from Oak Decline and the Southern Pine Beetle.

## IMPLAN

The economic effects to local counties, primarily in terms of employment and income, were estimated using an economic input-output model developed with IMPLAN Professional 2.0 (IMPLAN). IMPLAN (Impact Analysis for Planning) is a commercial

software package for personal computers that uses the latest national input-output tables from the Bureau of Economic Analysis. The data consists of national-level technology matrices and estimates of industrial sector activity for final demand, final payments, industry outputs and employment for each county in the U.S. along with state and national trends. The software was originally developed by the Forest Service and is now maintained by the Minnesota IMPLAN Group, Inc (MIG). Data used for the impact analysis was from secondary data for those counties considered to be in the forest's impact areas. The assumption used in this modeling process was that the impact area comprised the counties within the forest's designated county boundaries. The data source used in developing the Southern Appalachian Forest models for impact purposes was the most recent data available from MIG (1998).

Input-output analysis gives estimates of employment and income for an increase in final demand on certain sectors of the economy. For Forest Service timber, we have looked at the sawmill and pulpwood industries where our timber goes as the first processing step in manufacturing. Impacts include all those industries initially impacted as well as those industries linked with supplying inputs to production, as well as workers in those industries who then spend wages in their households (known as direct, indirect and induced effects, respectively). A Forest Service-developed spreadsheet known as "FEAST" (Forest Economic Analysis Spreadsheet Tool) was used to apply the IMPLAN results to each alternative, expressed in units of output. FEAST transformed the dollar impact for a given industry from IMPLAN to the various resource outputs by alternative into a specific employment and dollar output.

### Development of the Forest Planning Model (Spectrum)

Land management planning is the major mechanism for making large-scale and long-term forest land allocations and resource management decisions. Planning consists largely of exploring a national forest's productive potential and experimenting with various allocation choices. Modeling is an important planning tool because it permits studying the consequences of choices without actually committing valuable resources to experimentation or having to wait many years to observe an outcome. It can also evaluate whether desired future conditions are feasible when taking all resource management goals and objectives into consideration. However, decisions about land allocations, choosing and pursuing trade-offs, and accepting one result instead of another are made by people, not the model. The model is merely a device for organizing elements of the decision problem, discovering possible choices and identifying potential conflicts. The Spectrum model is an evolved version of FORPLAN, a linear programming model that solves for an overall objective, such as maximizing present net worth of benefits and costs or maximizing the amount of certain yields. It is an excellent tool for determining the most cost-efficient way to reach some objectives and for analyzing the impacts to vegetative conditions over time from various management activities.

In the past, this model has been used to make land allocation decisions; however, for this Forest Plan, those land allocations were essentially determined through the mapping of the management prescriptions (such as 6C - Old Growth) that varied for each alternative. Therefore, within Spectrum, the land allocation/management prescription assigned to every acre were already made in the model through the use of analysis areas. Because silvicultural treatments are one of the primary means of managing vegetation and wildlife habitat, and are easily modeled, the Spectrum model was constructed principally to examine how timber management could be used to achieve the goals and objectives for each alternative and for the individual management prescriptions. The Jefferson Spectrum model was therefore constructed to be a timber harvest allocation model, i.e. it was used to model management constraints and determine the most efficient way of meeting management objectives through the use of silvicultural prescriptions. Only

ESTIMATED EFFECTS OF ALTERNATIVES

benefits and costs pertaining to the timber program were included in the model. The effects from other type treatments on vegetation and other resources, as well as other resource benefits and costs, were addressed outside of the model, based on the timber-related outputs from the Spectrum model.

ANALYSIS TOOLS USED

## SPECTRUM MODEL OVERVIEW

SPECTRUM

The model was designed and solved in the following steps:

- Model creation - Designing a Spectrum model was the most intensive of the four steps. In this step the modeler input resource data, specified resource interactions, set goals and objectives, outlined management actions, defined activities and outputs, set the planning horizon, stratified the landscape into similar response areas, and input economic data.
- Matrix Generation - Generating the matrix was the process of converting the input from step one to a matrix of rows and columns that the optimization software could solve.
- Optimization of the Solution - The commercial software C-Whiz was used to solve the matrix. The linear programming solver found the best mix of management actions to meet the management objectives.
- Interpretation of the Solution- The final step in the modeling process was to use the reports created in Spectrum and spreadsheets to interpret the results of the optimization and perform sensitivity analyses.

The eight basic components of the Spectrum model include the following and are discussed individually in this section:

- 1) the planning horizon;
- 2) land stratification;
- 3) silvicultural prescriptions;
- 4) activities and outputs and their associated costs and benefits;
- 5) rotation ages;
- 6) yield coefficients;
- 7) constraints;
- 8) the overall management objectives.

## PLANNING HORIZON

Each Spectrum model has a specified time frame called a 'planning horizon' that may be as short or long as desired and is broken into time periods of 10 years each. The Jefferson Spectrum model used a planning horizon of 200 years, with 20 time periods, or decades. Activities and outputs are primarily represented in Spectrum on a decadal basis, occurring at the midpoint of the decade.

## LAND STRATIFICATION (ANALYSIS AREAS)

Analysis areas are defined as units of land, not necessarily contiguous, which can be considered to be homogeneous with respect to responses to treatment in terms of yields, costs, and values received for resource outputs. Management objectives or constraints are also expected to be relatively the same throughout an analysis area. In Spectrum, each analysis area is allowed up to six stratification categories to identify its unique responses to treatments, yields, costs, values and constraints. Table B-10 describes the

**Table B-10. Spectrum Analysis Areas**

| Stratum of Land | Description | Definition or Code |
|---|---|---|
| **LEVEL 1 - Vegetation** | **SAA Old Growth Community Type** | **CISC Forest Type(s)** |
| NH | Northern Hardwoods | 81 |
| CNH | Conifer-Northern Hardwoods | 3, 4, 5, 8, 9, 10 |
| MMWM | Mixed Mesophytics and Western Mesophytics | 41, 50, 56, 82 |
| ERH | Eastern Riverfront and River Floodplain | 58, 63, 69, 72, 73, 74, 75 |
| DMO | Dry Mesic Oaks | 51, 53, 54, 55 |
| DXO | Dry Xeric Oaks | 52, 57, 59, 60 |
| XPPO | Xeric Pine and Pine-Oaks | 11, 12, 15, 16, 20, 21, 33, 35, 38, 39, 88 |
| DDMO | Dry and Dry Mesic Oak-Pines | 42, 43, 44, 45, 46, 47, 48 |
| MSF | Montane Spruce-Fir | 6, 7, 17 |
| **LEVEL 1 *AGGREGATES** | **Working groups for timber yield tables** | **Combinations of Community Types** |
| *CVH | Cove Hardwoods | NH, MMWM, ERH |
| *UPH | Upland Hardwoods | DMO, DXO, DDMO |
| *YPN | Yellow Pines | XPPO, MSF |
| *WPN | White Pines | CNH |
| **LEVEL 2 – Site Productivity and Scenery** | **Site Index and Scenic Class** | **CISC and Scenery Mgmt System** |
| SI4 | Very low productivity | Site Index 40 |
| SI5 | Low to moderate productivity | Site Index 50-60 |
| SI7 | Moderate to high productivity | Site Index 70-80 |
| SI9 | High productivity | Site Index 90 and higher |
| SC1 | Very high scenic class | Scenic Class 1 |
| SC2 | High scenic class | Scenic Class 2 |
| SC37 | Moderate to low scenic class | Scenic Classes 3 through 7 |
| **LEVEL 3 – Recreation Experience and Slope** | **Recreation Opportunity Spectrum and Slope** | **Recreation Opportunity Spectrum and Areas <= 25% Slope suitable for Group Selection** |
| SPNM | Most primitive | Semi-primitive Non-motorized |
| SPM | Somewhat primitive | Semi-primitive Motorized |
| SP2 | One half mile buffer around semi-primitive areas and roadless areas | Semi-Primitive 2 |
| RN | Roaded | Roaded Natural |
| R | Developed Areas | Rural |
| G | Gentle slopes and accessible, suitable for group selection | Slope <=25%, near existing roads |

**Table B-10 Cont'd. Spectrum Analysis Areas**

| Stratum of Land | Description | Definition or Code |
|---|---|---|
| **LEVEL 4 – Management Prescription** | **Primary Management Emphasis** | **Management Prescription, Pre-Allocated and Varied by Alternative** |
| 4C2 | Geological/ Paleont. | Landslide area – Suitable |
| 4J | Urban/Suburban | Urban/Suburban Interface – Suitable |
| 4K1 | North Crk. Special Area | Special Area – Suitable |
| 7A | Scenic | Scenic Byway Corridors – Unsuitable |
| 7B | Scenic | Scenic Corridors and Viewsheds – Suitable |
| 7C | Recreation | OHV Use Areas – Suitable |
| 7E1 | Recreation | Dispersed Recreation – Unsuitable |
| 7E2 | Recreation | Dispersed Recreation – Suitable |
| 7F | Scenic | Blue Ridge Parkway – Suitable |
| 8A1 | Wildlife | Mid- to Late-Successional Habitat – Suitable |
| 8B | Wildlife | Early Successional Habitat – Suitable |
| 8C | Wildlife | Black Bear Habitat – Suitable |
| 8E1 | Wildlife | Ruffed Grouse Habitat – Suitable |
| 8E2b | Wildlife | Peaks of Otter Salamander, Secondary Habitat Area – Suitable |
| 8E4b | Wildlife | Indiana Bat Secondary Cave Areas – Suitable |
| 8E5 | Wildlife | Watchable Wildlife Emphasis – Suitable |
| 8E6 | Wildlife | Old Field Habitat – Suitable |
| 9A1 | Watershed | Source Water Protection – Suitable |
| 9A3 | Watershed | Watershed Restoration Areas – Suitable |
| 9H | Forest Health | Management, Maintenance and Restoration of Plant Associations – Suitable |
| 10A | Timber | Sustained Yield – Suitable |
| 10B | Timber | High Quality Forest Products – Suitable |
| 10E | Timber | Timber Management with Recreation Emphasis – Suitable |
| 99 | Unsuitable for Timber Production | All other Management Prescriptions |
| **LEVEL 5 – Successional Stage** | **Beginning Age** | **Terrestrial and Aquatic Issues Team** |
| EARLY | Early Successional | Age 0-10, All community types |
| SAP1 | Sapling/Pole Succ. | Age 11-40, Community types NH, CNH, MMWM, DMO, DXO, DDMO, MSF |
| SAP2 | Sapling/Pole Succ. | Age 11-20, Community types ERH, XPPO |
| MID1 | Mid Successional | Age 41-80, Community types NH, CNH, MMWM, DMO, DXO, DDMO, MSF |
| MID2 | Mid Successional | Age 21-60, Community types ERH, XPPO |
| LATE1 | Late Successional | Age 81-100, Community type NH |
| LATE2 | Late Successional | Age 81-110, Community type DXO |
| LATE3 | Late Successional | Age 81-120, Community types MMWM, DDMO, MSF |
| LATE4 | Late Successional | Age 81-130, Community type DMO |
| LATE5 | Late Successional | Age 81-140, Community type CNH |
| LATE6 | Late Successional | Age 61-100, Community types ERH, XPPO |
| OLD1 | Old Successional | Age 101+, Community types NH, ERH, XPPO |
| OLD2 | Old Successional | Age 110+, Community type DXO |
| OLD3 | Old Successional | Age 120+, Community types MMWM, DDMO, MSF |
| OLD4 | Old Successional | Age 130+, Community type DMO |
| OLD5 | Old Successional | Age 140+, Community type CNH |

**Table B-10 Cont'd. Spectrum Analysis Areas**

| Stratum of Land | Description |
|---|---|
| **LEVEL 6 – Geographic Location** | **District and Ecological Subsection** |
| BBRV | Blacksburg - Ridge and Valley |
| CLCP | Clinch – Cumberland Plateau |
| CLRV | Clinch – Ridge and Valley |
| GLBR | Glenwood – Blue Ridge |
| GLRV | Glenwood – Ridge and Valley |
| MRBR | Mount Rogers NRA – Blue Ridge |
| MRRV | Mount Rogers NRA – Ridge and Valley |
| NCRV | New Castle – Ridge and Valley |
| WYRV | Wythe – Ridge and Valley |

six strata used to determine the analysis areas. The Jefferson used a combination of Geographic Information System (GIS) data layers to construct its analysis areas. Initially, a polygon layer of stand information from the Continuous Inventory of Stand Conditions (CISC) was intersected with layers representing slope, the Recreational Opportunity Spectrum (ROS), the Scenery Management System (SMS), the ecological subsections, and the allocation of the Forest Plan management prescriptions mapped for each alternative. A stratum may have two resource layers combined in order to keep the number of strata to six.

The Old Growth Community Type classification was used to define the forest cover types. This allowed tracking of changes in these vegetation groupings over time for input into the wildlife habitat effects analysis. Yield tables were developed for the four aggregate groupings of these community types. Site index was used to differentiate the growth and yield estimates and the appropriate silvicultural prescriptions allowed. Scenic class and the Recreation Opportunity Spectrum (ROS) was incorporated to apply constraints by management prescription. The beginning successional class of an analysis area was used to track the movement of acres, by community type, in the various successional classes over the planning horizon. Most of the management prescriptions that are unsuitable for timber production were not included in the model, unless timber harvest could realistically be seen to be used to meet other resource objectives. Therefore, the model did calculate the amount of timber that could be reasonably expected to be harvested on both suitable and unsuitable lands. District and ecological subsections were used as a proxy for watersheds for the watershed effects analysis since the mapping of individual watersheds would have greatly increased the number of analysis.

## SILVICULTURAL PRESCRIPTIONS

The array of potential vegetative treatments applied to an analysis area is represented in the model by sets of actions known as management actions. Generally, a management action in Spectrum refers to a set of treatments or practices designed to develop or protect some combination of resources on a particular land type.

In addition to the 'no action' management action, the management actions incorporated in the Jefferson's Spectrum model were the various silvicultural treatments that could be used to meet vegetation manipulation objectives and are referred to as the *silvicultural prescriptions* in Table B-11. All lands were given the option of being assigned to a minimum level of management where no timber harvest would occur.

EFFECTS OF ALTERNATIVES

ANALYSIS TOOLS USED

SPECTRUM SILVICULTURAL PRESCRIPTIONS

**Table B-11. Silvicultural Prescriptions Modeled in Spectrum by Management Prescription and Scenic Class**

| Management Prescription | Scenic Class | Minimum Level / No Action | Clear-cut | SW-CWR | SW-2ST | SW-2A2 | SW-2A4 | GS |
|---|---|---|---|---|---|---|---|---|
| 4C2 Geologic Areas | 1-2 | X | | | X | X | X | X |
| | 3-7 | X | | X | X | X | X | X |
| 4E1b Cultural and Heritage Areas - suitable | 1-2 | X | | | X | X | X | X |
| | 3-7 | X | | X | X | X | X | X |
| 4J Urban/Suburban Interface | 1-2 | X | | | X | X | X | |
| | 3-7 | X | X | X | X | X | X | |
| 4K1 North Creek Special Area | 3-7 | X | X | X | X | X | X | X |
| 7A Scenic Byway Corridors | 1-2 | X | | | | X | X | X |
| 7B Scenic Corridors and Sensitive Viewsheds | 1-7 | X | | | | X | X | X |
| 7C OHV Use Areas | 1 | X | | | X | X | X | X |
| | 2-7 | X | | X | X | X | X | X |
| 7E1 Dispersed Recreation Areas- Unsuitable | 1 | X | | | | | X | X |
| | 2 | X | | | | X | X | X |
| | 3-7 | X | | X | X | X | X | X |
| 7E2 Dispersed Recreation Areas - Suitable | 1 | X | | | | | X | X |
| | 2 | X | | | | X | X | X |
| | 3-7 | X | | X | X | X | X | X |
| 7F Blue Ridge Parkway Visual Corridor | 1-2 | X | | | | | X | X |
| | 3-7 | X | | X | X | X | X | X |
| 8A1 Mid- to Late-Successional Forest Emphasis | 1-2 | X | | X | X | X | X | X |
| | 3-7 | X | | X | X | X | | X |
| 8B Early-Successional Habitat Emphasis | 1-2 | X | | X | X | X | X | X |
| | 3-7 | X | X | X | X | X | | X |
| 8C Black Bear Habitat Mgmt Areas | 1-7 | X | | X | X | X | X | X |
| 8E1 Ruffed Grouse Habitat Mgmt Area | 1 | X | X | X | X | X | X | |
| | 2 | X | X | | X | X | | |
| | 3-7 | X | X | | X | X | | |

- Clearcut – Clearcut, Clearcut with pre-commercial thinning, Clearcut with commercial thinning, and Clearcut with pre-commercial thinning and commercial thinning.
- SW-CWR – Shelterwood Coppice with Reserves where the preparatory cut leaves 20 square feet of basal area of primarily non-commercial species which are later removed at a commercial thinning of the new stand or at the final rotation of the new stand.
- SW-2ST – Shelterwood 2-Step with a residual basal area of 40-50 square feet left after the preparatory cut. The overstory removal occurs 10-20 years later.

**Table B-11 Cont'd. Silvicultural Prescriptions Modeled in Spectrum by Management Prescription and Scenic Class**

| Management Prescription | Scenic Class | Minimum Level / No Action | Clear-cut | SW-CWR | SW-2ST | SW-2A2 | SW-2A4 | GS |
|---|---|---|---|---|---|---|---|---|
| 8E2b Peaks of Otter Salamander - Secondary Area | 1-7 | X | | | | | X | X |
| 8E4b Indiana Bat Secondary Cave Protection Area | 1 | X | | | | | X | X |
| | 2-7 | X | | | X | X | X | X |
| 8E6 Old Field Habitat | 1 | X | | | | | X | X |
| | 2-7 | X | | | X | X | X | X |
| 9A1 Source Water Protection Watersheds | 1 | X | | | | | X | X |
| | 2-7 | X | | | X | X | X | X |
| 9A3 Watershed Restoration Areas | 1 | X | | | | | X | X |
| | 2-7 | X | | | X | X | X | X |
| 9H Mgmt, Mtce, and Restoration of Plant Associations | 1-7 | X | X | X | X | X | X | X |
| 10A Sustained Yield Forest Products | 1 | X | | | X | X | X | X |
| | 2 | X | X | X | X | X | X | X |
| | 3-7 | X | X | | X | X | | X |
| 10B High Quality Forest Products | 1 | X | | | X | X | X | X |
| | 2 | X | X | X | X | X | X | X |
| | 3-7 | X | X | | X | X | | X |
| 10E Timber with Recreation Emphasis | 1-2 | X | | | X | X | X | X |
| | 3-7 | X | X | X | X | X | | X |

- SW-2A2 – Shelterwood 2–Aged with a residual basal area of 20 square feet left after the preparatory cut. The overstory removal occurs 30-40 years later.
- SW-2A4 – Shelterwood 2-Aged with a residual basal area of 40 square feet left leaving 8-14 inch trees after the preparatory cut. The overstory removal occurs 40-60 years later.
- GS – Group Selection, uneven-aged management.

## ACTIVITIY COSTS AND OUTPUT BENEFITS

Management of a national forest yields a variety of public goods and services, many of which can be assigned cost and benefit values, such as timber and minerals. Environmental settings and maintaining or protecting long-term biological productivity of forested lands are examples of public goods created through forest management that cannot be assigned monetary values. Table B-12 and Table B-13 show activity and output variables used in the Jefferson's Spectrum model, and their assigned activity unit costs and priced output benefits. Since Spectrum was designed to model timber management, other resource activity costs and output values were estimated outside of the model.

**Table B-12. Activities and Their Associated Costs as Modeled in Spectrum (Base Year 2000)**

| Spectrum Activity | Unit of Measure | Range of Costs per Unit in the Model |
|---|---|---|
| Timber Sale Coordination with Other Resources | MCF (million cubic feet) | $207 - $253 |
| Harvest Administration | MCF | $46 - $66 |
| Pre-commercial Thinning | Acre | $91 |
| Timber Sale Preparation | MCF | $265 - $331 |
| Site Preparation | Acre | $73 - $84 |
| Timber Stand Improvement | Acre | $90-$104 |
| Planting | Acre | $115 |

**Table B-13. Outputs and Their Associated Benefit Values as Modeled in Spectrum (Base Year 2000)**

| Spectrum Output | Unit of Measure | Value per Unit in the Model |
|---|---|---|
| High Value Hardwood Sawtimber | MCF (million cubic feet) | $1,507 |
| Moderate Value Hardwood Sawtimber | MCF | $1,048 |
| Low Value Hardwood Sawtimber | MCF | $608 |
| Southern Yellow Pine Sawtimber | MCF | $482 |
| White Pine Sawtimber | MCF | $761 |
| Hardwood Roundwood | MCF | $75 |
| Pine Roundwood | MCF | $132 |

Costs for timber activities were derived by examining direct costs from the Timber Sale Program Information Reporting System (TSPIRS) TPIR01 reports from 1992 through 1998. Because TSPIRS methodology, as well as the timber program itself, has changed so much over the years, the cost data was also compared to historical budget and expense data. Reforestation and timber stand improvement costs were averaged from individual district data. The range of costs given for a particular activity accounted for the particular silvicultural treatment, such as clearcut versus group selection, used to perform the activity. Cost differentiations between logging systems were not estimated given the numerous factors on the Forest determining whether an area is tractor-logged, cable-logged or logged by helicopter (terrain, access, quality of product, proximity to markets, etc.). Trying to add this complexity into the mapping of the analysis areas through GIS would have exponentially increased the complexity of the Spectrum model.

An independent consultant reviewed a sample of the Jefferson National Forest's timber

sales and prepared a spreadsheet with volume weighted average high bid values by species from 1990 to 2000. From this data, species were grouped into the following appraisal groups with similar revenues: high value hardwood sawtimber, moderate value hardwood sawtimber, low value hardwood sawtimber, white pine sawtimber, southern yellow pine sawtimber, hardwood pulpwood and softwood pulpwood. Examples of high value hardwood sawtimber included white oak, northern red oak, ash, and yellow poplar. Moderate value included hickory, chestnut oak, and birch.

The amounts of road construction and reconstruction needed to access future timber harvests were not calculated in the Spectrum model for several reasons. Spectrum is not a spatial model, therefore it is difficult to address accessibility. However, timber sale data from 1996 to 2002 were analyzed with respect to the amount and type of road construction and reconstruction that were needed for each sale. Coefficients for the costs and mileages of system and temporary roads were estimated for each hundred cubic feet (CCF) of wood harvested and then applied to each alternative's estimated timber outputs (Table B-14). Costs of roads were therefore included in the Present Net Value analysis.

**Table B-14. Road Coefficients for Future Timber Access Needs**

| Type of Road | Miles Needed per CCF | Miles Needed per MMBF |
|---|---|---|
| System Road - Construction | 0.000092 | 0.167 |
| System Road - Reconstruction | 0.000112 | 0.204 |
| Temporary Road | 0.000360 | 0.656 |
| Skid Road | 0.000403 | 0.733 |

## ROTATION AGES

Another aspect of modeling the silvicultural prescriptions is the timing, or incorporation of rotation ages, which varied by forest community type. As required by NFMA, harvesting was not permitted to begin until the culmination of mean annual increment had been reached. Timing choices were categorized into four rotation categories: early, moderate, long and extended. The early rotation ages were generally applied to the early successional habitat emphasis prescriptions while the longer rotation ages were applied to the scenic and recreational prescriptions. In Alternative G, all of the rotations were lengthened so that for example, the rotation category for Management Prescription 8A1 (Mid– to Late-Successional) lands would be in the extended category instead of the long category. In all alternatives, it was not feasible to meet the desired percent early successional habitat in Management Prescriptions 8B (Early Successional), 8A1 (Mid– to Late-Successional) and 9H (Mgmt., Mtce. and Restoration of Plant Associations). Therefore, the rotation age for only the Upland Hardwood lands within those management prescriptions was shortened. Because of the early senescence of scarlet oak as compared to the other species in the Upland Hardwood working group, scarlet oak was assigned the rotation ages used for yellow pine. The yields for scarlet oak stands were the ones used for the upland hardwood working group species. Table B-15 shows the rotation ages used in Spectrum.

## TIMBER YIELDS

There were several steps in building the growth and yield tables. The first step was to select the Forest Inventory and Analysis (FIA) stands to be used in simulations in the Forest Vegetation Simulator (FVS model). Stratification of this data was performed based on geological province, forest type, and site index. The dataset from which FIA data could potentially be selected was limited to the Blue Ridge, Ridge and Valley, and/or Cumberland Plateau provinces of Virginia, Kentucky, North Carolina, Tennessee, South Carolina, and Georgia. Forest Type was used to group the data into one of four working

**Table B-15. Rotation Ages by Management Prescription**

| Mgmt Prescription Description | Early Rotation | Moderate Rotation | Late Rotation | Extended Rotation |
|---|---|---|---|---|
| 4C2 Geologic Areas | | CVH 80-100<br>UPH 100-120<br>WPN,SYP,SO 60-80 | | |
| 4E1b Cultural and Heritage Areas - Suitable | | CVH 80-100<br>UPH 100-120<br>WPN,SYP,SO 60-80 | | |
| 4J Urban and Suburban Interface | | | CVH 120-180<br>UPH 80-100<br>WPN 70-90<br>SYP, SO 80-100 | |
| 4K1 North Creek Special Area | | | | CVH 120-180<br>UPH 120-180<br>WPN,SYP,SO 80-100 |
| 7A Scenic Byway Corridors | | | | CVH 120-180<br>UPH 120-180<br>WPN,SYP,SO 80-100 |
| 7B Scenic Corridors and Sensitive Viewsheds | | | | CVH 120-180<br>UPH 120-180<br>WPN,SYP,SO 80-100 |
| 7C OHV Use Areas | CVH 70-90<br>UPH 80-100<br>WPN 60-80<br>SYP, SO 70-90 | | | |
| 7E1 Dispersed Rec Areas - Unsuitable | | | | CVH 120-180<br>UPH 120-180<br>WPN,SYP,SO 80-100 |
| 7E2 Dispersed Rec Areas -Suitable | | | CVH 100-120<br>UPH 120-140<br>WPN,SYP,SO 80-100 | |
| 7F Blue Ridge Parkway Visual Corridor | | | | CVH 120-180<br>UPH 120-180<br>WPN,SYP,SO 80-100 |
| 8A1 Mid- to Late-Successional Habitat | | UPH 100-120 | CVH 100-120<br>WPN,SYP,SO 80-100 | |

**Table B-15 Cont'd. Rotation Ages by Management Prescription**

| Mgmt Prescription | Early Rotation | Moderate Rotation | Late Rotation | Extended Rotation |
|---|---|---|---|---|
| 8B Early-Successional | UPH 80-100 | CVH 80-100<br>WPN,SYP,SO 80-100 | | |
| 8C Black Bear Habitat Management | | | CVH 100-120<br>UPH 120-140<br>WPN,SYP,SO 80-100 | |
| 8E1 Ruffed Grouse Habitat Mgmt Area | CVH 70-90<br>UPH 80-100<br>WPN,SYP,SO 60-80 | | | |
| 8E2b Peaks of Otter Salamander - Secondary | | | CVH 100-120<br>UPH 120-140<br>WPN,SYP,SO 80-100 | |
| 8E4b Indiana Bat Secondary | | | CVH 100-120<br>UPH 120-140<br>WPN,SYP,SO 80-100 | |
| 8E6 Old Field Habitat | CVH 70-90<br>UPH 80-100<br>WPN,SYP,SO 60-80 | | | |
| 9A1 Source Water Protection Watersheds | | | | CVH 120-180<br>UPH 120-180<br>WPN,SYP,SO 80-100 |
| 9A3 Watershed Restoration Areas | | | CVH 100-120<br>UPH 120-140<br>WPN,SYP,SO 80-100 | |
| 9H Mgmt, Mtce, & Restoration | | UPH 100-120 | CVH 100-120<br>WPN,SYP,SO 80-100 | |
| 10A Sustained Yield Forest Products | CVH 70-90<br>UPH 80-100<br>WPN,SYP,SO 60-80 | | | |
| 10B High Quality Forest Products | CVH 70-90<br>UPH 80-100<br>WPN,SYP,SO 60-80 | | | |
| 10E Timber with Recreation Emphasis | | CVH 80-100<br>UPH 100-120<br>WPN,SYP,SO 80-100 | | |

where:

CVH—the Cove Hardwood working group

UPH—the Upland Hardwood working group

YPN—the Yellow Pine working group

WPN—the White Pine working group

SO—Scarlet Oak

EFFECTS OF ALTERNATIVES

ANALYSIS TOOLS USED

SPECTRUM TIMBER YIELDS

groups: upland oak, cove hardwoods, white pine/hemlock, and southern yellow pine. These working groups correspond to analysis area identifiers used in the Spectrum model. Three categories of site indices were used to further stratify the data within these working groups: 50 to 60, 70 to 80, and 90 to 100.

Whenever possible, data selected for a simulation was limited to FIA plots on National Forest System lands in Virginia to simulate conditions on the Jefferson National Forest as closely as possible. For common working group/site index combinations (e.g. upland oak in the 70-80 site index group) this resulted in an adequate number of stands to provide statistically sound conclusions. However, in some cases (e.g. southern yellow pine on site index 90 to 100) very few FIA plots were found within those constraints. In such cases, selection criteria were broadened to include first, all of Virginia, then to all of the remaining southern states until an adequate number of FIA plots meeting the working group/site index criteria were selected.

The summary statistics for individual plots meeting the selection criteria were then reviewed for any obvious outliers. Stocking (basal area), trees per acre, and average diameter values were compared to published stocking charts (USDA Forest Service Agricultural Handbook 355) to identify selected FIA plots that were understocked. These understocked plots were eliminated from the simulation as needed.

The next step was to calibrate FVS to provide growth rates, volumes yielded, and mortality due to competition based on past and professional experience. Through a number of parameters, FVS can be customized to reflect local conditions. Based on volumes yielded from past harvesting data on the Forest coupled with professional experience with the average stand densities and diameters commonly found on the Forest, FVS was calibrated to simulate the forest stand dynamics that can be expected on the Jefferson National Forest.

The selected sets of FIA plots within these working group/site index combinations were then run through the calibrated FVS Southern Variant to show present volumes and predict growth and yield 150 years into the future. These were termed the “grow only” simulations. While the total volume output by FVS matched historical yield data from past timber harvests quite well, the allocation of that total volume between sawtimber and pulpwood volumes was not acceptable based on past harvest yield data. Therefore, the total volume output by FVS was then imported into a spreadsheet that allocated the division of pulpwood and sawtimber based on past harvest data considering working group and site index. For each of the four working groups, the spreadsheet also summarized the volume into the six appraisal groups that were modeled in Spectrum (high value hardwood sawtimber, moderate value hardwood sawtimber, low value hardwood sawtimber, white pine sawtimber, southern yellow pine sawtimber, hardwood pulpwood and softwood pulpwood). It also converted cubic feet, the unit output by FVS, into thousand cubic feet, the unit required by Spectrum. A comma-delimited file was then taken from the spreadsheet and imported into Spectrum.

The impact of some harvesting practices in growth and yield were also simulated using FVS. While the even-aged regeneration harvest methods (shelterwoods) were simulated simply by taking a percentage of the total standing volume from the grow only yield tables, partial harvests such as thinnings needed to be simulated in FVS. This is because thinning a stand significantly alters the growth and yield of the residual stems that would then be captured in a final harvest. While the same is true for shelterwood harvests, the length of time elapsing from the first entry to the final harvest is too small for this effect to be meaningful. In the case of the shelterwood with reserves and coppice with reserves treatments, so little standing volume is left and is not harvested in this rotation, that any growth accrued on those stems was deemed inconsequential. For the purposes of the Jefferson National

Forest, three thinning regimes were modeled; a pre-commercial thinning at age 15, a commercial thinning at age 55, and a combination of both the pre-commercial and commercial thinning. Separate yield tables were produced following a similar process described above for each of these regimes. The plots selected for these simulations were further stratified by age; only stands less than 15 years old were selected for the pre-commercial and combined simulations and only stands less than 55 years old were used in the commercial thinning simulations. Uneven-aged management was also simulated for a subset of the working group/site index combinations in the form of group selection. When we compared these outputs to the grow only runs, it was apparent that simply taking a percentage (i.e. 10% of the volume for a 10 year entry cycle and 100 year rotation scenario) yielded results very close to those produced by FVS. Based on this comparison and in the interest of simplifying the modeling process, it was decided to simulate uneven-aged management by simply taking a percentage of the grow only yield tables.

## CONSTRAINTS

The land allocation mapping of management prescriptions for each alternative essentially applied that alternative's overall goals, objectives and resource constraints to the land base. Therefore the Spectrum models constructed for each alternative were basically identical, with the exception of a new set of analysis areas for each alternative that resulted from a different mix of management prescriptions. The same set of silvicultural prescriptions, costs, benefits, yields, rotation ages and constraints related to successional stages, scenery and recreation opportunity spectrum were used for each alternative. The only exception was for Alternative G where the rotation ages for management prescription 8A1 were lengthened.

Constraints identified as "management requirements" (36 CFR 219.27) were applied to all alternatives. Additional constraints common to all alternatives were applied to insure an implementable solution. These common constraints fell into four categories: 1) constraints which assign congressionally and administratively designated areas to specific prescriptions, 2) constraints which ensure that the management requirements are met in each alternative, 3) timber scheduling constraints, and 4) operational constraints which constrain timber harvest to a realistic solution.

The following requirements, or constraints, were applied to all Spectrum model alternatives:

- Silvicultural prescriptions were not modeled within the riparian habitat within any of the management prescriptions. They were also not modeled within any semi-primitive motorized or non-motorized areas in any management prescription, whether the management prescription was suitable for timber production or not.
- Although lands with a site index below 50 were represented in the model for growth and yield estimates, those lands were not allowed to be scheduled for harvest.
- Group selection was prohibited from occurring in yellow pine stands and old successional stage stands. Only those lands with a gentle slope near an existing road network were made available for group selection.
- The Long-Term Sustained Yield (LTSY) constraint was used to ensure that the harvest of timber in the last decade is not greater that the long-term timber production capacity of the Forest. Long-term sustained yield capacity was computed using the acreage scheduled to each regeneration prescription applied in the model.

- The perpetual timber harvest constraint was used to ensure that the remaining timber inventory would allow achievement of non-declining harvest levels beyond the modeling horizon. To achieve this condition the constraint required that the Forest contain as much timber inventory volume at the end of the last period as the Forest would have, on the average, under the management intensities selected in the analysis. Without this constraint the Spectrum model would have no reason to leave enough inventory at the end of the planning period to sustain timber harvest levels into perpetuity.
- The non-declining yield constraint was used to ensure that the harvest of timber in a decade was greater than or equal to the harvest of timber in the previous period. This constraint indirectly limited the model to a lower present net value and reduced flow of timber in the early decades but also provided community economic and social stability through the controlled flow of timber.
- Timber harvests on lands classified as suitable for timber production were not scheduled for regeneration before the *culmination of mean annual increment* (CMAI). This constraint, indirectly applied through the harvest timing options allowed, ensured that relatively large sawtimber would be produced and ensured that smaller trees were not harvested before the site was completely utilized.
- The Allowable Sale Quantity (ASQ) was constrained to be no greater or less than 10 percent of that in the previous decade in order to provide a more even flow.
- No timber was modeled to be harvested in Spectrum in semi-primitive non-motorized or semi-primitive motorized areas.
- Each alternative was modeled with the same objective function: to solve for the maximization of present net value. The mapping of management prescriptions for each alternative reflected the overall goals, objectives and constraints of that alternative so a different objective function was not needed to reflect the overall emphasis of a particular alternative.
- The ranges of desired early successional habitat for each management prescription identified by the FWBRE Team were evaluated as constraints in the model for each alternative. Not all alternatives were able to meet those constraints. As discussed earlier under rotation ages, the early successional habitat objectives for management prescriptions 8A1, 8B and 9H were not achievable at all unless the rotation age for upland hardwoods in those management prescriptions was reduced, because of the existing ages in these prescriptions. In addition, several constraints were modeled for late successional habitat. Management prescription 8A1 needed at least 20 percent of acres greater than 100 years old and a minimum of 50 percent of acres greater than 40 years old. Management prescription 8B needed a minimum of 5 percent of acres greater than 100 years old. Management prescription 8C needed a minimum of 50 percent of acres greater than 40 years old and a minimum of 25 percent of acres greater than 100 years old. Table B-16 illustrates all of the desired successional ranges modeled as constraints for all alternatives.
- The Spectrum model's selection of uneven-age management was constrained to be between 200 and 300 acres per decade for management prescription 8A1, between 100 and 300 acres per decade for 7E2 and between 100 and 200 acres per decade for 7B.

**Table B-16. Percent of Early Succession for Each Alternative in Spectrum**

| Management Prescription | Early Successional Habitat Range | Mid Successional and Older Habitat Range | Old Successional Habitat Range |
|---|---|---|---|
| 4C2 Geologic - Landslides | 0-4% | | |
| 4E1b Cultural and Heritage Areas – suitable | 0-4% | | |
| 4J Urban/Suburban Interface | 4-10% | | |
| 4K1 North Creek Special Area | 0-4% | | |
| 7A Scenic Byway Corridors | 0-4% | | |
| 7B Scenic Corridors & Sensitive Viewsheds | 0-4% | | |
| 7C OHV Use Areas | 4-10% | | |
| 7E1 Dispersed Recreation Areas - Unsuitable | 0-4% | | |
| 7E2 Dispersed Recreation Areas - Suitable | 4-10% | | |
| 7F Blue Ridge Parkway Corridor | 0-4% | | |
| 8A1 Mid- to Late-Successional Forest Emphasis | 4-10% | >= 50% | >= 20% |
| 8B Early-Successional Habitat | 10-16% | | >= 5% |
| 8C Black Bear Habitat Mgmt | 4-10% | >= 50% | >= 25% |
| 8E1 Ruffed Grouse Habitat Mgmt | 10-16% | | |
| 8E2b Peaks of Otter Salamander | 0-4% | | |
| 8E4b Indiana Bat Secondary Cave | 4-10% | | |
| 8E6 Old Field Habitat | 4-10% | | |
| 9A1 Source Water Protection Watersheds | 0-4% | | |
| 9A3 Watershed Restoration Areas | 0-4% | | |
| 9H Management, Maintenance, and Restoration of Plant Associations to Their Ecological Potential | 4-10% | | |
| 10A Sustained Yield Forest Products | 10-16% | | |
| 10B High Quality Forest Products | 10-16% | | |
| 10E Timber w/ Recreation Emphasis | 4-10% | | |

## OBJECTIVE FUNCTIONS

The objective function allows specification of an overall objective to be met in a given run of the model while all constraints otherwise specified are met. Since the alternative-dependent mapping of the management prescriptions and the application of the constraints essentially established the overall objective for each alternative, the Spectrum models for all of the Jefferson's alternatives were designed to solve for the most economical manner in which to accomplish those inherent objectives. Therefore, all of the alternatives had an objective function to solve for maximum present net value for all activities and outputs.

### Sediment Yield and Cumulative Effects for Watershed Analysis

A sediment yield/cumulative effects model was developed (Clingenpeel, 2002) to estimate sediment yields and analyze the cumulative effects of proposed management actions on water quality. A good summary of the model can be found in Chapter 3 of the EIS under the Hydrology section and a more technical assumptions associated with the model can be found in the process paper (Clingenpeel, 2002) with a citation found in the

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list of references. The process provided a means to systematically evaluate water quality conditions for 5th level watersheds covered in whole or in part by the Forest Plan. The process also provided results that aided in aquatic viability analysis at the community scale.

The model first determined the current condition of each 5th level watershed (all lands). This was accomplished by ranking on a relative scale (1-5) the condition of each watershed in terms of sediment, point source pollution, stream temperature and altered stream flow. Sedimentation was assessed based on current land uses represented in each watershed. Estimates of current sediment were expressed as a percent increase above a baseline condition (forested, with no roads). Point source pollutants were expressed as a density (points per square mile). Temperature was assessed based on the road density in the riparian area and the percent of the riparian area forested in the 1970's and 1990's. Altered stream flow was evaluated based on the number of dams, road density in the riparian area and average density of strip mines (1970's and 1990's) within each 5th level watershed.

Major assumptions associated with the model included:

- Sediment yield is an appropriate surrogate for determining cumulative impacts to water quality.
- Fifth level watersheds are the appropriate scale of analysis for cumulative effects to water resource.
- Appropriate erosion coefficients from Dissmeyer and Stump (1978) approximate erosion rates from land use activities on CNF lands.

The model provided the following information:

- Estimates of the current sediment yield within 5th level watersheds covered in total or partially by the Forest Plan.
- Estimates of sediment yield attributable to Forest Service activities by alternative and planning period.
- Estimates of cumulative sediment yields for entire 5th level watersheds (all ownerships) by alternative and planning period.
- An index of watershed health for 5th level watersheds based on the percent increase in sediment yield above a baseline condition. The initial watershed index is determined by using the relative abundance of locally adapted species with respect to sediment increases. The score is modified based on physiographic province, percent of national forest ownership within the watershed, percent of the riparian that is forested, and road density within riparian.

### Prescribed Fire Analysis

The community types in order of importance with regard to fire dependency are: Xeric Pine and Pine-Oak; Dry Xeric Oak; Dry and Dry Mesic Oak-Pine; and Dry-Mesic Oak. The Xeric Pine and Pine-Oak and Dry Xeric Oak community types have a mean fire return interval of 5 – 15 years and for this analysis 10 years was used for the calculations. The Dry and Dry-Mesic Oak-Pine and Dry-Mesic Oak community types have a mean fire return interval of 10 – 20 years and for this analysis 20 years was used for the calculations. Mean Fire Return Intervals were determined by identifying all tree species that occur on the Jefferson National Forest and reviewing their fire ecology within the Fire Effects Information System (FEIS), consulting with the Forest Ecologist and reviewing a paper written by the Assistant Forest Fire Management Officer that included fire return intervals for several tree species that he

had gathered from various research papers. Each species was then consolidated into one of the nine appropriate Old Growth Community Types. Based on the range of fire return interval data, an average was calculated for each community type and expressed as a percentage.

The maximum prescribed burn acres by alternative were calculated for the following four fire dependent Old Growth Community Types (OGCT): Dry-Mesic Oak; Dry Xeric Oak; Xeric Pine and Pine-Oak; and Dry and Dry Mesic Oak-Pine. Within each alternative, the acres for each fire dependent OGCT were stratified into three categories (high, medium and low) that represented the relative likelihood of how much prescribed burning will be done within them, depending on the management prescription. It was estimated five percent of the acres would come from the low, twenty percent from the medium and the remaining seventy-five percent from the high category. Each acreage figure was then multiplied by the Mean Fire Return Interval, expressed as a percentage, and the high, medium and low acres were then totaled for each alternative.

The minimum prescribed burn acres by alternative were calculated using a method termed as the gap analysis process. For this process, all acres of the planning unit were utilized in the calculation regardless of fire dependency of individual species. On page 94 of the Terrestrial Technical Report, Report 5 of 5 of the Southern Appalachian Assessment, Southern Appalachian Man and the Biosphere (SAMAB), the effects of natural disturbance dynamics in the Appalachians were discussed. "Studies in the Southern Appalachians have found canopy gaps forming at an average of 0.4 to 2.0 percent of the land area annually (Runkle 1985) …" As fire is one natural disturbance occurring on the landscape, his percentages were assigned to the management prescriptions based on the prescribed fire level that would be applied to each. Originally, the management prescriptions were broken into four categories of prescribed fire use: little to no; low; medium; and high and assigned the following corresponding values: .004; .01; .015; and .02. Each prescription acreage figure was multiplied by the corresponding gap analysis value based on the prescribed fire level commensurate for that particular management prescription and then all prescription acres were totaled for an alternative total. The prescribed fire level modifier remained constant for all alternatives. All alternatives were calculated the same with the exception of Alternative E, the recreation based alternative. Alternative E acres were reduced by approximately twenty percent to account for a reduced prescribed burning program due to an increased number of recreationists, smoke/air quality/visual concerns due to more recreationists enjoying the national forest, and the fact that typically a greater percentage of individuals are recreating in the fall (for the leaf color change) and spring when prescribed burning would be conducted. The twenty percent reduction equated to approximately 1,500 acres.

The prescribed fire program was broken out into the four burn types: pine woodland; balds and grasslands; woodland understory; and silvicultural treatment for oak regeneration so that particulate matter (pm2.5) emissions could be calculated. The tons per acre of fuel consumed for each category of burn were calculated for each burn type and for a minimum and a maximum prescribed burn program by alternative.

### Present Net Value Analysis

The 1982 National Forest Management Act (NFMA) implementing regulations (36 CFR 219.1) state that forest plans must "…provide for multiple-use and sustained yield of goods and services from the National Forest System in a way that maximizes long-term net public benefits in an environmentally sound manner." Net public benefits is defined as the overall value to the Nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Present net value (PNV) is one of the criteria used to determine net public benefits (NPB) in benchmarks and alternatives. It is the difference between the discounted value of all outputs which were assigned a price in the revision and all Forest Service

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management and investment costs over the analysis period. The PNV converts all costs and benefits over a 50 year planning period to a common point in time. Other benefits of public land management cannot be measured using dollar values. These non-priced benefits are another criteria used to determine NPB. Each alternative was determined and analyzed to achieve its goals and objectives in a manner that produced the greatest PNV while meeting all specified costs and objectives for non-priced benefits. Thus, the PNV of each alternative estimated the highest value of priced benefits while accounting for the costs of producing priced benefits, non-priced benefits, and meeting management requirements. The PNV of each alternative can then be compared directly, even though the actual costs and benefits occur at different times. Two parameters were used in PNV analysis: Base year dollars — All monetary values entered into Spectrum and the PNV analysis were in 2000 dollars. Discount rate — A four percent discount rate was used. It approximates the return on long-range investments above the rate of inflation. All costs and benefits were discounted from the midpoint of each decade.

The output estimates for range, timber, minerals, recreation and wildlife under each alternative were identified in Chapter 3 of the EIS for the effects analysis. The benefit values for each of these resources came from different sources and are displayed in Table B-17. Range benefit estimates came from The Forest Service Program for Forest and Rangeland Resources: A Long-Term Strategic Plan (the Recommended 1990 RPA Program) and were inflated to 2000 dollars. Timber benefits were the same as used in Spectrum (from historical timber sale data). The mineral benefits were from market prices for minerals from the Minerals Management Agency. Recreation, hunting and fishing benefits were estimated from the U.S. Forest Service's National Visitor Use and Monitoring data (NVUM), and the U.S. Fish and Wildlife Services's wildlife use data.

### Socio-Economic Analysis

Economic effects to local counties were estimated using an economic input-output model developed with IMPLAN Professional 2.0 (IMPLAN) and are disclosed in Chapter 3 of the EIS. The IMPLAN model was used to determine total consequences of dollar, employment, and income changes in selected sectors. Because input-output models are linear, multipliers or response coefficients need only be calculated once per model and then applied to the direct change in final demand. A Forest Service-developed spreadsheet known as "FEAST" (Forest Economic Analysis Spreadsheet Tool) was used to apply the IMPLAN impact results to each alternative, expressed in units of output. FEAST transformed the dollar impact for a given industry from IMPLAN to the resource output by alternative into a specific employment and dollar output.

An impact analysis describes what happens when a change in final sales (e.g. exports and residents) occurs for goods and services in the model region. Changes in final sales are the result of multiplying production data (e.g., head months of grazing or recreation visitor trips) by sales. Economic impacts were estimated for 2010, using the expenditure data for recreation, wildlife and hunting (U.S. Forest Service's National Visitor Use and Monitoring data, (NVUM), and the Fish & Wildlife Service's wildife use data, respectively); stumpage estimates for timber, market prices for minerals, and estimated animal allotment prices for Range. NVUM data were used by Daniel J. Stynes and EricWhite, Michigan State University, July 2002 to estimate spending profiles of recreation users. The USDA Forest Service Inventory and Monitoring Institute, Fort Collins, CO estimated spending profiles from the 1996 U.S. Fish & Wildlife Services wildlife data.

Impacts to local economies are measured in two ways: employment and total income. Employment is expressed in jobs. A job can be seasonal or year-round, full-time or part-time. The income measure used was total income expressed in 2000 dollars. Total

**Table B-17. Economic Benefits and Financial Revenue Values Used in the PNV Analysis (expressed as year 2000 dollars)**

| Output | Value |
|---|---|
| **Range ($/AUM)** | |
| Cattle/Horses | $5.50 |
| **Timber ($/MCF)** | |
| Sawtimber-Softwood | $688 |
| Sawtimber-Hardwood | $1,558 |
| Roundwood-Softwood | $143 |
| Roundwood-Hardwood | $81 |
| **Minerals** | |
| Dimension Stone ($/Metric Ton) | $4.65 |
| Crushed Stone ($/Metric Ton) | $3.37 |
| Limestone ($/Metric Ton) | $7.89 |
| Natural Gas ($/cubic meter) | $0.09 |
| **Recreation ($/Visit)** | |
| Camping, Picnicking, Swimming | $21.47 |
| MechanizedTravel, Viewing Scenery | $16.57 |
| Winter Sports | $90.24 |
| Resorts | $37.27 |
| Wilderness (backpacking) | $45.67 |
| Other Recreation | $132.67 |
| **Wildlife ($/Visit)** | |
| Hunting | $71.22 |
| Fishing | $141.43 |
| Wildlife Watching | $84.88 |

income includes both employee compensation (pay plus benefits) and proprietors income (e.g. self-employed). Impacts to local employment and income were estimated from outputs from the timber, range, recreation and wildlife/fisheries programs, total forest service expenditures and employment, and estimated 25% payments to local counties.

#### TIMBER PROGRAM

Sales data was determined by using timber values multiplied by estimated production levels for each alternative. Hardwood and softwood sawtimber were processed through the sawmill industry. Hardwood and softwood roundwood were processed at the pulp mill. Impacts represent the economic activity occurring in all backward linking sectors associated with the final demand output of the timber industries described above.

#### RANGE PROGRAM

The best available data for agriculture was found in the *1997 Census of Agriculture*. From this census, data for farm livestock inventory, Table 14, was used. Animal months of grazing on forest land were provided from the USDA Forest Service "Annual Grazing Report". This unit of use information was placed in FEAST to link with IMPLAN impact data

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in dollars to yield an impact for the range resource per unit of grazing (AUM).

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**RECREATION and WILDLIFE/FISH PROGRAMS**

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Recreation and Wildlife and Hunting trips were derived from the National Visitor Use and Monitoring survey, 2001 (NVUM). The resulting calculations yielded trips for Resident and Non-resident Day Use, On National Forest Overnight Use, and Off National Forest Overnight Use. These use metrics were entered into FEAST to link with IMPLAN impact response coefficients to yield an impact for recreation and wildlife resources.

While some analysts may not include resident participation in local economy impacts because there may be substitution opportunities for local residents to spend their discretionary dollar, it was decided to include resident expenditures in the local economy with the caveat that these expenditures were "associated" with the impacts not "responsible" for causing the impacts. "Associated" is used instead of "responsible" because local recreation users have many choices in an impact area for recreation. If some people choose not to recreate on national forest system lands, they may recreate in another manner such as go to sporting events or a movie. The dollars would still be spent in the local economy causing a similar impact, but the provider of recreation would be a different party. Local residents are defined as recreation users within 50 miles of the forest boundary.

**FEDERAL EXPENDITURES AND EMPLOYMENT**

A Forest budget was estimated for each alternative, and these estimates were used for forest expenditures, some of which had local economic effects. Total forest obligations by budget object code for FY 2000 were obtained from the National Finance Center and used to identify total forest expenditures. The proportion of funds spent by program varied by alternative according to the theme for that alternative. Forest Service employment was estimated by the forest staff based on examination of historical Forest Service obligations.

To obtain an estimate of total impacts from Forest Service spending, salary and non-salary portions of the impact were handled separately. Non-salary expenditures were determined by using the budget object code information noted above. This profile was run through the model for non-salary expenditures per one million dollars, and the results multiplied by total forest non-salary expenditures. FEAST was again used to make the calculations. Local sales to the federal government are treated in the same manner as exports. Salary impacts result from forest employees spending a portion of their salaries locally. IMPLAN includes a profile of personal consumption expenditures for several income categories; the average compensation for an employee on the Southern Appalachian National Forests fell in the category of $30,000-$39,999.

**DIVERISTY ANALYSIS**

Economic diversity indices, using the Shannon-Weaver entropy function, have been computed for all U.S. counties, labor market areas, BEA functional economic areas, BEA component economic areas, and states using IMPLAN employment data for the years 1977, 1982, 1985 and 1990-1993. Also, indices have been computed for three levels of industry aggregation: 1-, 2- and 4-digit SIC groups. These data are available in various spreadsheet and database formats.

What are the Shannon-Weaver economic indices?

If economic diversity is defined as "the presence in an area of a great number of different types of industries" or "the extent to which the economic activity of a region is distributed among a number of categories", then it is useful to have a summary statistic to describe

the diversity of an area and compare it to other areas. The Shannon-Weaver entropy function (Shannon and Weaver, 1949) has been used to calculate indices of economic diversity (Attaran, 1986).

The entropy method measures diversity of a region against a uniform distribution of employment where the norm is equi-proportional employment in all industries. It is applied to the regional estimate of employment data.

The indices contained in these databases have been normalized with respect to the maximum possible index for a given domain of industries (n) so that comparisons can be made between indices for 4-, 2- and 1-digit SIC aggregations. As a result, all indices range between 0 (no diversity) and 1.0 (perfect diversity).

### BUDGET

Table B-18 displays the forest plan budget to implement each of the alternatives. The Alternative I budget is based on the Forest's Fiscal Year 2004 Budget Formulation and Execution System's (BFES) estimate of 110% of current funding. The budget for the timber program was increased to reflect achievement of the Allowable Sale Quantity. The other alternatives were adjusted to reflect ASQ and the changes in resource emphasis in each alternative.

### 25% FUND PAYMENTS

Until September 30, 2001, Federal law required that 25% Fund Payments be used for only schools or roads or both. A split of 50 percent for schools and 50 percent for roads was used. One profile of expenditures was developed from within the county forest boundary model for 1) the highway construction sector and 2) local educational institutions. Because counties can choose to continue payments under this formula, traditional payments were analyzed (it was assumed 50 percent of payments went to roads and 50 percent to education). Should counties choose fixed payments under the new law, the impacts would not vary by alternative. The impact of the fixed payment was not calculated. The national expenditure profile for state/local government education (schools) and local model estimates for road construction (roads) are provided within IMPLAN. One million dollars of each profile was used to obtain a response coefficient for these Forest Service payments to impact area counties. Sales to local government are treated in the same manner as exports.

### DETAILED SOCIO-ECONOMIC TABLES FROM CHAPTER 3

Tables B-19 through B-35 provide additional detail, often at the individual county level, for data discussed in the Socio-Economic Environment section of Chapter 3 in the EIS.

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**Table B-18. Estimated Budget for Each Alternative**

| Budget Program | Alt A (M$) | Alt B (M$) | Alt D (M$) | Alt E (M$) | Alt F (M$) | Alt G (M$) | Alt I (M$) |
|---|---|---|---|---|---|---|---|
| NFPN -- Land Mgt. Planning | 277 | 277 | 277 | 277 | 277 | 277 | 277 |
| NFIM -- Inventory & Monitoring | 686 | 686 | 601 | 686 | 601 | 686 | 686 |
| NFRW -- Recreation Management | 1,709 | 1,609 | 1,415 | 1,774 | 1,415 | 1,669 | 1,609 |
| NFWF -- Wildlife, Fish, Rare Plants | 454 | 592 | 380 | 463 | 380 | 622 | 454 |
| NFRG -- Grazing Management | 56 | 36 | 40 | 56 | 40 | 0 | 56 |
| NFTM -- Forest Products | 2,798 | 2,342 | 4,906 | 826 | 2,931 | 402 | 2,287 |
| NFVW -- Vegetation, Watershed | 655 | 867 | 721 | 509 | 652 | 699 | 624 |
| NFMG -- Minerals & Geology | 322 | 322 | 315 | 322 | 315 | 322 | 322 |
| NFLM -- Land Management | 410 | 410 | 371 | 410 | 371 | 410 | 410 |
| NFLE -- Law Enforcement | 759 | 759 | 636 | 759 | 636 | 759 | 759 |
| WFHF -- Hazardous Fuels | 411 | 444 | 414 | 378 | 108 | 402 | 420 |
| CMFC -- Facilities | 1,263 | 1,163 | 1,072 | 1,263 | 1,072 | 1,163 | 1,263 |
| CMRD -- Roads | 1,210 | 1,157 | 1,101 | 1,182 | 1,101 | 1,079 | 1,182 |
| CMTL -- Trails | 791 | 711 | 663 | 791 | 663 | 666 | 791 |
| SPEA -- Economic Action | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CWFS -- Cooperative Work | 13 | 13 | 13 | 13 | 13 | 13 | 13 |
| FDFD -- Fee Demo | 350 | 350 | 350 | 350 | 350 | 350 | 350 |
| QMQM -- Quarters Maintenance | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| SSSS -- Salvage Sales (In NFTM) | | | | | | | |
| CWKV -- Knutsen-Vandenberg | 310 | 310 | 310 | 310 | 310 | 310 | 310 |
| WFPR - Wildlfire Pre-Suppression | 2,040 | 2,040 | 2,040 | 2,040 | 2,040 | 2,040 | 2,040 |
| Total | 14,516 | 14,091 | 15,629 | 12,411 | 13,277 | 11,872 | 13,856 |

**Table B-19. Population Changes by County**

| Location | 1980 | 1990 | 2000 | % change 80-90 | % change 90-00 |
|---|---|---|---|---|---|
| **Virginia Counties** | | | | | |
| Bedford | 34,927 | 45,656 | 60,371 | 31 | 32 |
| Bland | 6,349 | 6,514 | 6,871 | 3 | 5 |
| Botetourt | 23,270 | 24,992 | 30,496 | 7 | 22 |
| Carroll | 27,270 | 26,594 | 29,245 | -2 | 10 |
| Craig | 3,948 | 4,372 | 5,091 | 11 | 16 |
| Dickenson | 19,806 | 17,620 | 16,395 | -11 | -7 |
| Giles | 17,810 | 16,366 | 16,657 | -8 | 2 |
| Grayson | 16,579 | 16,278 | 17,917 | -2 | 10 |
| Lee | 25,956 | 24,496 | 23,589 | -6 | -4 |
| Montgomery | 63,516 | 73,913 | 83,629 | 16 | 13 |
| Pulaski | 35,229 | 34,496 | 35,127 | -2 | 2 |
| Roanoke | 72,945 | 79,294 | 85,778 | 9 | 8 |
| Rockbridge | 17,911 | 18,350 | 20,808 | 2 | 13 |
| Scott | 25,068 | 23,204 | 23,403 | -7 | 1 |
| Smyth | 33,366 | 32,370 | 33,081 | -3 | 2 |
| Tazewell | 50,511 | 45,960 | 44,598 | -9 | -3 |
| Washington | 46,487 | 45,887 | 51,103 | -1 | 11 |
| Wise | 43,863 | 39,573 | 40,123 | -10 | 1 |
| Wythe | 25,522 | 25,471 | 27,599 | 0 | 8 |
| **Virginia Independent Cities** | | | | | |
| Bedford | 5,991 | 6,073 | 6,299 | 1 | 4 |
| Bristol | 19,042 | 18,426 | 17,367 | -3 | -6 |
| Buena Vista | 6,904 | 6,406 | 6,349 | -7 | -1 |
| Galax | 6,524 | 6,670 | 6,837 | 2 | 3 |
| Lexington | 7,292 | 6,959 | 6,867 | -5 | -1 |
| Norton | 4,757 | 4,247 | 3,904 | -11 | -8 |
| Radford | 13,456 | 15,940 | 15,859 | 18 | -1 |
| Roanoke | 100,220 | 96,509 | 94,911 | -4 | -2 |
| Salem | 23,958 | 23,797 | 24,747 | -1 | 4 |
| **West Virginia Counties** | | | | | |
| Monroe | 12,873 | 12,406 | 14,583 | -4 | 17 |
| **Kentucky Counties** | | | | | |
| Letcher | 30,687 | 27,000 | 25,277 | -12 | -6 |
| Pike | 81,123 | 72,583 | 68,736 | -11 | -5 |
| **State of Virginia** | 5,346,818 | 6,187,358 | 7,078,515 | 16 | 14 |

Source: U.S. Census Bureau

**Table B-20. Minority Trends by County**

| Location | % White in 2000 | % Black in 2000 | % American Indian in 2000 | % Asian and Pacific Islander in 2000 | % Other Race in 2000 | % Minority in 1990 | % Minority in 2000 |
|---|---|---|---|---|---|---|---|
| **Virginia Counties** | | | | | | | |
| Bedford | 93% | 6% | <1% | <1% | <1% | 8% | 7% |
| Bland | 95% | 4% | <1% | <1% | <1% | 4% | 5% |
| Botetourt | 96% | 4% | <1% | <1% | 1% | 5% | 4% |
| Carroll | 98% | <1% | <1% | <1% | 2% | 1% | 2% |
| Craig | 99% | <1% | <1% | <1% | <1% | 0% | 1% |
| Dickenson | 99% | <1% | <1% | <1% | <1% | 1% | 1% |
| Giles | 98% | 2% | <1% | <1% | <1% | 2% | 2% |
| Grayson | 92% | 7% | <1% | <1% | <1% | 3% | 8% |
| Lee | 99% | <1% | <1% | <1% | 1% | 1% | 1% |
| Montgomery | 91% | 4% | <1% | 4% | 1% | 8% | 9% |
| Pulaski | 93% | 6% | <1% | <1% | 1% | 6% | 7% |
| Roanoke | 94% | 3% | <1% | 2% | 1% | 4% | 6% |
| Rockbridge | 96% | 3% | <1% | <1% | 1% | 4% | 4% |
| Scott | 99% | 1% | <1% | <1% | <1% | 1% | 1% |
| Smyth | 97% | 2% | <1% | <1% | 1% | 2% | 3% |
| Tazewell | 97% | 2% | <1% | 1% | <1% | 3% | 3% |
| Washington | 98% | 1% | <1% | <1% | 1% | 2% | 2% |
| Wise | 97% | 2% | <1% | <1% | 1% | 2% | 3% |
| Wythe | 96% | 3% | <1% | <1% | 1% | 4% | 4% |
| **Virginia Independent Cities** | | | | | | | |
| Bedford | 76% | 23% | <1% | 1% | <1% | 23% | 24% |
| Bristol | 94% | 6% | <1% | <1% | <1% | 6% | 6% |
| Buena Vista | 94% | 5% | <1% | <1% | 1% | 5% | 6% |
| Galax | 87% | 6% | <1% | 1% | 6% | 7% | 13% |
| Lexington | 87% | 10% | <1% | 2% | 1% | 13% | 13% |
| Norton | 92% | 6% | <1% | 1% | <1% | 8% | 8% |
| Radford | 90% | 8% | <1% | 1% | 1% | 8% | 10% |
| Roanoke | 71% | 27% | <1% | 1% | 1% | 25% | 29% |
| Salem | 93% | 6% | <1% | 1% | <1% | 5% | 7% |
| **West Virginia Counties** | | | | | | | |
| Monroe | 93% | 6% | <1% | <1% | <1% | 1% | 7% |
| **Kentucky Counties** | | | | | | | |
| Letcher | 99% | <1% | <1% | <1% | <1% | 1% | 1% |
| Pike | 99% | <1% | <1% | <1% | <1% | 1% | 1% |
| **State of Virginia** | 74% | 20% | <1% | 4% | 2% | 23% | 26% |

Source: U.S. Census Bureau

**Table B-21. Population Density by County**

| Location | Land Area in Square Miles | 1980 Person / Sq Mile | 1990 Person / Sq Mile | 2000 Person / Sq Mile |
|---|---|---|---|---|
| **Virginia Counties** | | | | |
| Bedford | 754 | 46 | 61 | 80 |
| Bland | 359 | 18 | 18 | 19 |
| Botetourt | 543 | 43 | 46 | 56 |
| Carroll | 476 | 57 | 56 | 61 |
| Craig | 331 | 12 | 13 | 15 |
| Dickenson | 332 | 60 | 53 | 49 |
| Giles | 357 | 50 | 46 | 47 |
| Grayson | 443 | 37 | 37 | 38 |
| Lee | 437 | 59 | 56 | 54 |
| Montgomery | 388 | 164 | 190 | 215 |
| Pulaski | 321 | 110 | 107 | 110 |
| Roanoke | 251 | 291 | 316 | 342 |
| Rockbridge | 600 | 30 | 31 | 35 |
| Scott | 537 | 47 | 43 | 44 |
| Smyth | 452 | 74 | 72 | 73 |
| Tazewell | 520 | 97 | 88 | 86 |
| Washington | 563 | 83 | 82 | 91 |
| Wise | 404 | 109 | 98 | 104 |
| Wythe | 463 | 55 | 55 | 60 |
| **Virginia Independent Cities** | | | | |
| Bedford | 7 | 856 | 868 | 914 |
| Bristol | 13 | 1,465 | 1,417 | 1,346 |
| Buena Vista | 7 | 986 | 915 | 930 |
| Galax | 8 | 816 | 834 | 831 |
| Lexington | 3 | 2,431 | 2,320 | 2,758 |
| Norton | 8 | 595 | 531 | 519 |
| Radford | 10 | 1,346 | 1,594 | 1,615 |
| Roanoke | 43 | 2,331 | 2,244 | 2,213 |
| Salem | 15 | 1,597 | 1,586 | 1,696 |
| **West Virginia Counties** | | | | |
| Monroe | 473 | 27 | 26 | 31 |
| **Kentucky Counties** | | | | |
| Letcher | 339 | 91 | 80 | 75 |
| Pike | 788 | 103 | 92 | 87 |
| **State of Virginia** | 39,598 | 135 | 156 | 179 |

Source: U.S. Census Bureau

**Table B-22. Per Capita and Median Income by County**

| Location | 1990 Per Capita Income | 1990 Median Income | 2000 Per Capita Income | 2000 Median Income | Real Avg Annual % Change '80-'90 Per Capita Income | Real Avg Annual % Change '90-'00 Per Capita Income |
|---|---|---|---|---|---|---|
| **Virginia Counties** | | | | | | |
| Bedford | $14,305 | $30,712 | $21,582 | $43,136 | 3.8% | -0.5% |
| Bland | $9,765 | $23,587 | $17,744 | $30,397 | 2.3% | 1.3% |
| Botetourt | $13,810 | $33,079 | $22,218 | $48,731 | 2.5% | 0.1% |
| Carroll | $9,693 | $21,564 | $16,475 | $30,597 | 2.0% | 0.7% |
| Craig | $11,186 | $25,106 | $17,322 | $37,314 | 2.5% | -0.3% |
| Dickenson | $8,067 | $16,292 | $12,822 | $23,431 | -0.2% | 0.0% |
| Giles | $11,462 | $24,125 | $18,396 | $34,927 | 2.5% | 0.1% |
| Grayson | $8,966 | $19,324 | $16,768 | $28,676 | 0.7% | 1.6% |
| Lee | $7,837 | $14,618 | $13,625 | $22,972 | 0.8% | 0.9% |
| Montgomery | $10,979 | $22,949 | $17,077 | $32,330 | 2.0% | -0.2% |
| Pulaski | $11,074 | $23,319 | $18,973 | $33,873 | 1.8% | 0.7% |
| Roanoke | $16,627 | $36,886 | $24,637 | $47,689 | 2.7% | -0.7% |
| Rockbridge | $11,287 | $24,955 | $18,356 | $36,035 | 2.5% | 0.2% |
| Scott | $9,100 | $18,346 | $15,073 | $27,339 | 2.1% | 0.4% |
| Smyth | $9,613 | $20,912 | $16,105 | $30,083 | 1.4% | 0.5% |
| Tazewell | $9,995 | $19,670 | $15,282 | $27,304 | 0.8% | -0.4% |
| Washington | $11,057 | $22,179 | $18,350 | $32,742 | 1.9% | 0.4% |
| Wise | $9,392 | $19,594 | $14,271 | $26,149 | 0.3% | -0.5% |
| Wythe | $10,404 | $20,964 | $17,639 | $32,235 | 1.6% | 0.6% |
| **Virginia Independent Cities** | | | | | | |
| Bedford | $11,070 | $22,787 | $15,423 | $28,792 | 1.3% | -1.3% |
| Bristol | $10,290 | $19,226 | $17,311 | $27,389 | 0.4% | 0.6% |
| Buena Vista | $10,241 | $23,929 | $16,377 | $32,410 | 1.9% | 0.1% |
| Galax | $10,490 | $20,263 | $17,447 | $28,236 | 0.0% | 0.5% |
| Lexington | $10,077 | $21,361 | $16,497 | $28,982 | 1.3% | 0.3% |
| Norton | $9,214 | $15,460 | $16,024 | $22,788 | 1.8% | 0.9% |
| Radford | $9,704 | $19,487 | $14,289 | $24,654 | 0.4% | -0.8% |
| Roanoke | $12,513 | $22,591 | $18,468 | $30,719 | 1.4% | -0.7% |
| Salem | $14,467 | $29,041 | $20,091 | $38,997 | 1.5% | -1.3% |
| **West Virginia Counties** | | | | | | |
| Monroe | $8,959 | $18,217 | $17,435 | $25,643 | 1.7% | 2.0% |
| **Kentucky Counties** | | | | | | |
| Letcher | $7,340 | $18,229 | $11,984 | $24,889 | 0.2% | 0.3% |
| Pike | $8,674 | $20,656 | $14,005 | $29,302 | 0.0% | 0.2% |
| **State of Virginia** | $15,713 | $33,328 | $23,975 | $46,677 | 2.8% | 0.1% |

Source: U.S. Census Bureau

**Table B-23. Unemployment Rate and Poverty Rate by County**

| Virginia Counties | Unemployment Rate (%) 1990 | Unemployment Rate (%) 1997 | 1989 Percent of All Ages in Poverty | 1999 Percent of All Ages in Poverty |
|---|---|---|---|---|
| Bedford | 4.3 | 3.5 | 7 | 7.1 |
| Bland | 5.8 | 6.7 | 10 | 12.4 |
| Botetourt | 3.5 | 3.2 | 6.2 | 5.2 |
| Carroll | 7.4 | 4.3 | 14.1 | 12.5 |
| Craig | 6 | 4.3 | 9.8 | 10.3 |
| Dickenson | 16.5 | 16.8 | 25.9 | 21.3 |
| Giles | 8.6 | 6.8 | 12.2 | 9.5 |
| Grayson | 9.2 | 5.4 | 15.3 | 13.6 |
| Lee | 9.3 | 9.4 | 28.7 | 23.9 |
| Montgomery | 7.4 | 2.6 | 22.1 | 23.2 |
| Pulaski | 13.3 | 5.4 | 13.4 | 13.1 |
| Roanoke | 2.9 | 2.4 | 4.1 | 4.5 |
| Rockbridge | 5.7 | 3.3 | 13.6 | 9.6 |
| Scott | 7.8 | 6.8 | 20.9 | 16.8 |
| Smyth | 9.7 | 8.4 | 16.7 | 13.3 |
| Tazewell | 9.2 | 9 | 19 | 15.3 |
| Washington | 8 | 6.1 | 15.2 | 10.9 |
| Wise | 10.7 | 12.3 | 21.6 | 20 |
| Wythe | 9.4 | 6.7 | 17.5 | 11 |
| **Virginia Independent Cities** | | | | |
| Bedford | 3.7 | 3.2 | 16.4 | 19.7 |
| Bristol | 7.8 | 5 | 20.6 | 16.2 |
| Buena Vista | 8.9 | 4.3 | 14.4 | 10.4 |
| Galax | 8.2 | 3.3 | 18.8 | 18.6 |
| Lexington | 7.9 | 2 | 18.2 | 21.6 |
| Norton | 9.4 | 6.8 | 26.7 | 22.8 |
| Radford | 11.5 | 3.2 | 32.2 | 31.4 |
| Roanoke | 4.5 | 4.2 | 16.1 | 15.9 |
| Salem | 3.1 | 3.1 | 5.2 | 6.7 |
| **West Virginia Counties** | | | | |
| Monroe | 9.2 | 5.8 | 21 | 16.2 |
| **Kentucky Counties** | | | | |
| Letcher | 9.3 | 8.9 | 31.8 | 27.1 |
| Pike | 7.7 | 8 | 25.4 | 23.4 |
| **State of Virginia Total** | 4.3 | 4 | 10.2 | 9.6 |

Source: U.S. Census Bureau, Small Area Income and Poverty Estimates Program

**Table B-24. Housing Unit and Median Housing Value by County**

| | Total Housing Units 1990 | Total Housing Units 2000 | Percent Change of Total Housing Units 1990-2000 | Median Value Housing Units 1990 | Median Value Housing Units 2000 | Percent Change in Median Value Housing Units 1990-2000 |
|---|---|---|---|---|---|---|
| **Virginia Counties** | | | | | | |
| Bedford | 19,641 | 26,841 | 37% | $75,800 | $127,000 | 68% |
| Bland | 2,706 | 3,161 | 17% | $43,800 | $71,500 | 63% |
| Botetourt | 9,785 | 12,571 | 28% | $73,400 | $130,500 | 78% |
| Carroll | 12,209 | 14,680 | 20% | $44,000 | $68,900 | 57% |
| Craig | 1,993 | 2,554 | 28% | $49,500 | $85,400 | 73% |
| Dickenson | 7,112 | 7,684 | 8% | $39,300 | $55,900 | 42% |
| Giles | 7,098 | 7,732 | 9% | $46,300 | $69,200 | 49% |
| Grayson | 7,529 | 9,123 | 21% | $39,700 | $65,800 | 66% |
| Lee | 10,263 | 11,086 | 8% | $34,400 | $56,900 | 65% |
| Montgomery | 27,770 | 32,527 | 17% | $71,700 | $114,600 | 60% |
| Pulaski | 14,740 | 16,325 | 11% | $51,400 | $80,000 | 56% |
| Roanoke | 31,689 | 36,121 | 14% | $80,500 | $118,100 | 47% |
| Rockbridge | 7,975 | 9,550 | 20% | $54,700 | $92,400 | 69% |
| Scott | 10,003 | 11,355 | 14% | $41,400 | $69,100 | 67% |
| Smyth | 13,132 | 15,111 | 15% | $42,600 | $67,900 | 59% |
| Tazewell | 18,901 | 20,390 | 8% | $48,600 | $67,900 | 40% |
| Washington | 19,183 | 22,985 | 20% | $52,500 | $90,400 | 72% |
| Wise | 15,927 | 17,792 | 12% | $43,500 | $65,700 | 51% |
| Wythe | 10,659 | 12,744 | 20% | $48,900 | $77,300 | 58% |
| **Virginia Independent Cities** | | | | | | |
| Bedford | 2,625 | 2,702 | 3% | $55,700 | $90,400 | 62% |
| Bristol City | 8,174 | 8,469 | 4% | $48,400 | $71,400 | 48% |
| Buena Vista | 2,494 | 2,716 | 9% | $43,300 | $72,900 | 68% |
| Galax | 2,943 | 3,217 | 9% | $45,200 | $70,300 | 56% |
| Lexington | 2,311 | 2,376 | 3% | $74,500 | $131,900 | 77% |
| Norton | 1,845 | 1,946 | 5% | $48,000 | $62,800 | 31% |
| Radford | 5,496 | 6,137 | 12% | $64,500 | $95,100 | 47% |
| Roanoke | 31,689 | 45,257 | 43% | $80,500 | $80,300 | 0% |
| Salem | 9,609 | 10,403 | 8% | $69,100 | $104,200 | 51% |
| **West Virginia Counties** | | | | | | |
| Monroe | 5,994 | 7,267 | 21% | $42,500 | $64,700 | 52% |
| **Kentucky Counties** | | | | | | |
| Letcher | 10,808 | 11,405 | 6% | $41,300 | $39,500 | -4 |
| Pike | 28,760 | 30,923 | 8% | $27,300 | $65,900 | 141% |
| **State of Virginia** | 2,496,334 | 2,904,192 | 16% | $91,000 | $125,400 | 38% |

Source: U.S. Census Bureau

**Table B-25. Shannon-Weaver Entropy Diversity Index by County**

| | 1977 Four Digit SIC | 1993 Four Digit SIC | % Change from 1977 to 1993 |
|---|---|---|---|
| **Virginia Counties** | | | |
| Bedford | 0.47242 | 0.6239 | 32% |
| Bland | 0.41471 | 0.51455 | 24% |
| Botetourt | 0.50313 | 0.62243 | 24% |
| Carroll | 0.47804 | 0.56646 | 18% |
| Craig | 0.36164 | 0.55282 | 53% |
| Dickenson | 0.31303 | 0.53687 | 72% |
| Giles | 0.38932 | 0.53464 | 37% |
| Grayson | 0.3686 | 0.56477 | 53% |
| Lee | 0.47842 | 0.57205 | 20% |
| Montgomery | 0.52119 | 0.545 | 5% |
| Pulaski | 0.52628 | 0.59957 | 14% |
| Roanoke | 0.55452 | 0.6314 | 14% |
| Rockbridge | 0.33322 | 0.54857 | 65% |
| Scott | 0.50918 | 0.5758 | 13% |
| Smyth | 0.50693 | 0.61831 | 22% |
| Tazewell | 0.50158 | 0.62534 | 25% |
| Washington | 0.58178 | 0.65566 | 13% |
| Wise | 0.40968 | 0.54689 | 33% |
| Wythe | 0.50637 | 0.60564 | 20% |
| **Virginia Independent Cities** | | | |
| Bedford | 0.49934 | 0.61006 | 22% |
| Bristol | 0.55414 | 0.63326 | 14% |
| Buena Vista | 0.50315 | 0.57637 | 15% |
| Galax | 0.48913 | 0.51143 | 5% |
| Lexington | 0.45083 | 0.54074 | 20% |
| Norton | 0.44581 | 0.55084 | 24% |
| Radford | 0.46144 | 0.55448 | 20% |
| Roanoke | 0.56207 | 0.65905 | 17% |
| Salem | 0.48206 | 0.59207 | 23% |
| **West Virginia Counties** | | | |
| Monroe | 0.31121 | 0.57755 | 86% |
| **Kentucky Counties** | | | |
| Letcher | 0.3788 | 0.54754 | 45% |
| Pike | 0.39852 | 0.57321 | 44% |
| **State of Virginia** | 0.48121 | 0.70084 | 46% |
| **United States** | 0.66483 | 0.73973 | 11% |

**Table B-26. Payments in Lieu of Taxes by County**

| | 1988 Payments | 1991 Payments | 1994 Payments | 1997 Payments | 2000 Payments |
|---|---|---|---|---|---|
| **Virginia Counties** | | | | | |
| Bedford | $11,670 | $13,636 | $19,961 | $18,458 | $17,509 |
| Bland | $25,223 | $29,903 | $32,273 | $30,661 | $49,271 |
| Botetourt | $27,622 | $32,773 | $33,599 | $30,010 | $54,336 |
| Carroll | $3,787 | $3,976 | $7,956 | $7,081 | $8,212 |
| Craig | $42,137 | $48,111 | $52,229 | $48,777 | $76,761 |
| Dickenson | $9,095 | $9,614 | $9,877 | $10,584 | $11,890 |
| Giles | $23,946 | $31,996 | $30,495 | $28,330 | $43,501 |
| Grayson | $11,744 | $13,889 | $20,865 | $17,352 | $22,304 |
| Lee | $9,576 | $10,288 | $10,775 | $10,203 | $13,271 |
| Montgomery | $6,789 | $7,847 | $8,512 | $8,091 | $12,700 |
| Pulaski | $6,575 | $7,791 | $8,408 | $7,827 | $12,378 |
| Roanoke | $5,977 | $6,836 | $8,712 | $6,464 | $5,846 |
| Rockbridge | $9,325 | $10,481 | $9,314 | $8,768 | $39,552 |
| Scott | $11,976 | $14,128 | $15,218 | $14,389 | $22,559 |
| Smyth | $26,058 | $31,678 | $34,826 | $31,767 | $49,189 |
| Tazewell | $3,442 | $4,522 | $4,799 | $4,375 | $6,696 |
| Washington | $7,834 | $9,214 | $10,062 | $9,325 | $14,641 |
| Wise | $12,521 | $14,859 | $15,995 | $15,028 | $23,663 |
| Wythe | $19,960 | $23,609 | $25,440 | $24,604 | $38,034 |
| | | | | | |
| **West Virginia Counties** | | | | | |
| Monroe | $14,682 | $11,478 | $15,076 | $14,284 | $15,043 |
| | | | | | |
| **Kentucky Counties** | | | | | |
| Letcher | $466 | $533 | $507 | $485 | $475 |
| Pike | $11,644 | $11,667 | $11,993 | $11,320 | $12,446 |

Source: U S. Bureau of Land Management

**Table B-27. Payments to States by County**

| | 1988 | 1991 | 1994 | 1997 | 2000 | % Change 1988-2000 |
|---|---|---|---|---|---|---|
| **Virginia Counties** | | | | | | |
| Bedford | $5,119 | $8,175 | $7,321 | $8,216 | $5,453 | 7 |
| Bland | $19,555 | $31,410 | $28,149 | $31,720 | $21,648 | 11 |
| Botetourt | $17,799 | $28,507 | $25,468 | $29,683 | $19,740 | 11 |
| Carroll | $1,560 | $2,493 | $2,834 | $3,183 | $2,112 | 35 |
| Craig | $31,254 | $49,964 | $44,891 | $50,714 | $33,732 | 8 |
| Dickenson | $2,248 | $3,588 | $3,205 | $3,597 | $2,387 | 6 |
| Giles | $17,067 | $27,440 | $24,658 | $27,680 | $18,379 | 8 |
| Grayson | $8,930 | $14,312 | $12,863 | $14,449 | $9,590 | 7 |
| Lee | $3,086 | $4,925 | $4,400 | $4,951 | $3,286 | 6 |
| Montgomery | $5,252 | $8,310 | $7,417 | $8,498 | $5,640 | 7 |
| Pulaski | $5,266 | $8,405 | $7,507 | $8,425 | $5,592 | 6 |
| Roanoke | $835 | $1,342 | $1,198 | $1,345 | $910 | 9 |
| Rockbridge | $5,785 | $9,234 | $8,261 | $9,294 | $6,168 | 7 |
| Scott | $9,315 | $14,868 | $13,306 | $15,105 | $10,025 | 8 |
| Smyth | $19,708 | $31,698 | $28,855 | $32,470 | $21,593 | 10 |
| Tazewell | $2,422 | $4,108 | $3,816 | $4,282 | $2,842 | 17 |
| Washington | $6,012 | $9,622 | $8,650 | $9,740 | $6,465 | 8 |
| Wise | $9,740 | $15,598 | $13,993 | $15,844 | $10,516 | 8 |
| Wythe | $15,513 | $24,846 | $22,199 | $25,465 | $16,926 | 9 |
| **West Virginia Counties** | | | | | | |
| Monroe | $5,018 | $8,018 | $7,211 | $8,092 | $5,372 | 7 |
| **Kentucky Counties** | | | | | | |
| Letcher | $231 | $368 | $329 | $369 | $245 | 6 |
| Pike | $32 | $51 | $45 | $51 | $34 | 6 |
| **FOREST COUNTY TOTAL** | $191,747 | $307,282 | $276,576 | $313,173 | $208,655 | 9 |

Source: USDA Forest Service, Rocky Mountain Research Station

**Table B-28. Land Use in 1992 by County**

| Virginia Counties | Percent Forested | Percent Agricultural | Percent Residential | Percent Water | Percent Quarries, Strip Mine, Gravel Pits | Percent Transitional |
|---|---|---|---|---|---|---|
| Bedford | 69 | 28 | 1 | 2 | 0 | 0 |
| Bland | 81 | 19 | 0 | 0 | 0 | 0 |
| Botetourt | 79 | 19 | 1 | 1 | 0 | 0 |
| Carroll | 64 | 35 | 1 | 0 | 0 | 0 |
| Craig | 88 | 12 | 0 | 0 | 0 | 0 |
| Dickenson | 94 | 3 | 0 | 1 | 1 | 1 |
| Giles | 82 | 15 | 1 | 1 | 0 | 1 |
| Grayson | 70 | 28 | 1 | 1 | 0 | 0 |
| Lee | 79 | 20 | 1 | 0 | 0 | 0 |
| Montgomery | 67 | 28 | 4 | 1 | 0 | 0 |
| Pulaski | 60 | 34 | 3 | 3 | 0 | 0 |
| Roanoke | 69 | 14 | 16 | 0 | 0 | 0 |
| Rockbridge | 71 | 27 | 2 | 0 | 0 | 0 |
| Scott | 88 | 12 | 0 | 0 | 0 | 0 |
| Smyth | 74 | 24 | 2 | 0 | 0 | 0 |
| Tazewell | 72 | 26 | 2 | 0 | 0 | 0 |
| Washington | 71 | 26 | 3 | 0 | 0 | 0 |
| Wise | 88 | 4 | 2 | 0 | 4 | 2 |
| Wythe | 54 | 44 | 2 | 0 | 0 | 0 |
| **West Virginia Counties** | | | | | | |
| Monroe | N/A | N/A | N/A | N/A | N/A | N/A |
| **Kentucky Counties** | | | | | | |
| Letcher | N/A | N/A | N/A | N/A | N/A | N/A |
| Pike | N/A | N/A | N/A | N/A | N/A | N/A |

Source: Virginia National Land Cover Data Set, U.S. Geological Survey and U.S. Environmental Protection Agency, 1992

**Table B-29. Heads of Household by County**

| | Persons per Household 2000 | Age 65 and over Households Percent Change 1990-2000 | Percent of Households, Female Only with Children 2000 |
|---|---|---|---|
| **Virginia Counties** | | | |
| Bedford | 2.52 | 23% | 4% |
| Bland | 2.43 | 28% | 4% |
| Botetourt | 2.56 | 24% | 3% |
| Carroll | 2.36 | 29% | 4% |
| Craig | 2.45 | 25% | 3% |
| Dickenson | 2.42 | 26% | 5% |
| Giles | 2.37 | 29% | 5% |
| Grayson | 2.31 | 30% | 4% |
| Lee | 2.41 | 28% | 5% |
| Montgomery | 2.4 | 16% | 5% |
| Pulaski | 2.32 | 26% | 5% |
| Roanoke | 2.41 | 26% | 5% |
| Rockbridge | 2.43 | 28% | 5% |
| Scott | 2.35 | 30% | 4% |
| Smyth | 2.37 | 28% | 6% |
| Tazewell | 2.4 | 28% | 5% |
| Washington | 2.36 | 26% | 4% |
| Wise | 2.44 | 26% | 6% |
| Wythe | 2.36 | 27% | 5% |
| **Virginia Independent Cities** | | | |
| Bedford | 2.26 | 33% | 11% |
| Bristol City | 2.18 | 35% | 7% |
| Buena Vista | 2.38 | 29% | 8% |
| Galax | 2.27 | 30% | 8% |
| Lexington | 2.06 | 34% | 4% |
| Norton | 2.23 | 26% | 9% |
| Radford | 2.25 | 19% | 5% |
| Roanoke | 2.2 | 27% | 10% |
| Salem | 2.32 | 28% | 6% |
| **West Virginia Counties** | | | |
| Monroe | 2.41 | 30% | 4% |
| **Kentucky Counties** | | | |
| Letcher | 2.48 | 24% | 5% |
| Pike | 2.46 | 23% | 6% |
| **State of Virginia** | 2.54 | 21% | 7% |

Source: U.S. Census Bureau

**Table B-30. Economic Sectors in Jefferson National Forest's Local Economy**

| Sector | 1985 Industry Output | 1985 % of Output Total | 1996 Industry Output | 1996 % of Output Total | 1985 Employment | 1985 % of Employment Total | 1996 Employment | 1996 % of Employment Total | 1985 Total Income | 1985 % of Total Income | 1996 Total Income | 1996 % of Total Income |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Agriculture** | 525 | 2.40% | 380 | 1.20% | 17566 | 4.80% | 11233 | 2.10% | 179 | 1.60% | 181 | 2.10% |
| **Mining** | 2209 | 9.90% | 1552 | 4.70% | 18138 | 5.00% | 7974 | 1.50% | 907 | 8.20% | 566 | 1.50% |
| **Construction** | 1283 | 5.80% | 3203 | 9.70% | 19932 | 5.50% | 40644 | 7.70% | 513 | 4.60% | 1,174 | 7.70% |
| **Other Manufacturing** | 6342 | 28.50% | 5994 | 18.20% | 67894 | 18.70% | 42679 | 8.10% | 2050 | 18.50% | 1,928 | 8.10% |
| **Wood Products Manufacturing** | | | | | | | | | | | | |
| Mfg.--SIC 24 Lumber & Wood Prods. | 159 | 0.70% | 1063 | 3.20% | 3446 | 0.90% | 7790 | 1.50% | 46 | 0.40% | 323 | 1.50% |
| Mfg.--SIC 25 Wood Furniture & Fixtures | 337 | 1.50% | 413 | 1.30% | 7014 | 1.90% | 5357 | 1.00% | 132 | 1.20% | 145 | 1.00% |
| Mfg.--SIC 26 Paper & Pulp Products | 163 | 0.70% | 68 | 0.20% | 1477 | 0.40% | 185 | 0.00% | 60 | 0.50% | 19 | 0.00% |
| **Total Manufacturing** | 7001 | 31.50% | 7538 | 22.90% | 79831 | 21.90% | 56011 | 10.60% | 2288 | 20.60% | 2,415 | 10.60% |
| **Recreation Related Services** | | | | | | | | | | | | |
| Recreational Related Wholesale | 6 | 0.00% | 0 | 0.00% | 85 | 0.00% | 0 | 0.00% | 3 | 0.00% | 0 | 0.00% |
| Recreational Related Retail Trade | 24 | 0.10% | 0 | 0.00% | 772 | 0.20% | 0 | 0.00% | 13 | 0.10% | 0 | 0.00% |
| Local, Interurban Passenger Transit | 6 | 0.00% | 0 | 0.00% | 0 | 0.00% | 311 | 0.00% | 4 | 0.00% | 6 | 0.10% |

**Table B-30 Continued. Economic Sectors in Jefferson National Forest's Local Economy**

| Sector | 1985 Industry Output | 1985 % of Output Total | 1996 Industry Output | 1996 % of Output Total | 1985 Employment | 1985 % of Employment Total | 1996 Employment | 1996 % of Employment Total | 1985 Total Income | 1985 % of Total Income | 1996 Total Income | 1996 % of Total Income |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Other Recreation Related Industries** | | | | | | | | | | | | |
| Air Transportation | 21 | 0.10% | 5 | 0.00% | 1 | 0.00% | 55 | 0.00% | 10 | 0.10% | 0 | 0.00% |
| Wholesale & Retail Trade | 119 | 0.50% | 144 | 0.40% | 294 | 0.10% | 2524 | 0.50% | 67 | 0.60% | 7 | 0.50% |
| General Merchandise Stores | 0 | 0.00% | 9 | 0.00% | 0 | 0.00% | 324 | 0.10% | 0 | 0.00% | 0 | 0.10% |
| Food Stores | 0 | 0.00% | 22 | 0.10% | 0 | 0.00% | 873 | 0.20% | 0 | 0.00% | 0 | 0.20% |
| Eating & Drinking | 72 | 0.30% | 173 | 0.50% | 44 | 0.00% | 5380 | 1.00% | 24 | 0.20% | 3 | 1.00% |
| Miscellaneous Retail | 0 | 0.00% | 18 | 0.10% | 0 | 0.00% | 637 | 0.10% | 0 | 0.00% | 0 | 0.10% |
| Hotels and Lodging Places | 51 | 0.20% | 342 | 1.00% | 10 | 0.00% | 7197 | 0.00% | 29 | 0.30% | 5 | 1.40% |
| Laundry, Cleaning and Shoe Repair | 6 | 0.00% | 6 | 0.00% | 1 | 0.00% | 248 | 1.40% | 4 | 0.00% | 0 | 0.00% |
| Automobile Rental and Leasing | 2 | 0.00% | 1 | 0.00% | 0 | 0.00% | 248 | 0.00% | 1 | 0.00% | 0 | 0.00% |
| Automobile Repair and Services | 16 | 0.10% | 43 | 0.10% | 2 | 0.00% | 586 | 0.10% | 7 | 0.10% | 0 | 0.10% |
| Amusement and Recreation Services, N.E.C. | 5 | 0.00% | 58 | 0.20% | 0 | 0.00% | 1707 | 0.30% | 3 | 0.00% | 0 | 0.30% |
| **Total Tourism Estimate** | 328 | 1.50% | 827 | 2.50% | 1207 | 0.30% | 19853 | 3.70% | 165 | 1.50% | 21 | 3.70% |
| **Transportation & Utilities--Non-Tourism** | 2129 | 9.60% | 3278 | 10.00% | 23152 | 6.40% | 21932 | 4.10% | 1148 | 10.40% | 1,597 | 4.10% |
| **Finance, Insurance, Real Estate** | 1371 | 6.20% | 4125 | 12.50% | 16760 | 4.60% | 25672 | 4.80% | 758 | 6.80% | 2,509 | 4.80% |
| **Services--Non-Tourism** | 2160 | 9.70% | 5631 | 17.10% | 60084 | 16.50% | 119277 | 22.50% | 1308 | 11.80% | 3,134 | 22.50% |
| **Wholesale & Retail Trade--Non-Tourism** | 2654 | 11.90% | 4618 | 14.00% | 68258 | 18.80% | 113212 | 21.40% | 1408 | 12.70% | 2,748 | 21.40% |
| **Government** | 2521 | 11.30% | 1718 | 5.20% | 54939 | 15.10% | 111739 | 21.10% | 2357 | 21.30% | 1,575 | 21.10% |
| **Other--Misc.** | 49 | 0.20% | 56 | 0.20% | 4048 | 1.10% | 2478 | 0.50% | 49 | 0.40% | 56 | 0.50% |
| **TOTAL** | 22231 | 100.00% | 32926 | 100.00% | 363915 | 100.00% | 530025 | 100.00% | 11081 | 100.00% | 15,976 | 100.00% |

**Table B-31. Net Exports for Entire Local Economy**

| Commodity | 1985 Net Exports - Exports Less Imports | 1996 Net Exports - Exports Less Imports | 1985 Net Exporting Industries as a Percentage Exporting Industries | 1996 Net Exporting Industries as a Percentage Exporting Industries |
|---|---|---|---|---|
| Agriculture | ($5.20) | ($171.50) | 0.00% | 0.00% |
| Mining | $1,232.20 | $765.50 | 55.90% | 17.70% |
| Construction | ($246.70) | $232.50 | 0.00% | 5.40% |
| Other Manufacturing | ($877.00) | ($2,436.60) | 0.00% | 0.00% |
| Mfg.--SIC 24 Lumber & Wood Prods. | ($34.60) | $446.70 | 0.00% | 10.30% |
| Mfg.--SIC 25 Wood Furniture & Fixtures | $242.20 | $269.50 | 11.00% | 6.20% |
| Mfg.--SIC 26 Paper & Pulp Products | ($105.30) | ($212.60) | 0.00% | 0.00% |
| Total Manufacturing | ($774.60) | ($1,933.00) | 0.00% | 0.00% |
| Existing in Tourism Estimate: | | | | |
| Transportation & Utilities | $1.20 | $637.90 | 0.10% | 14.70% |
| Local, Interurban Passenger Transit | ($130.10) | ($48.30) | 0.00% | 0.00% |
| Air Transportation | ($130.10) | ($163.70) | 0.00% | 0.00% |
| Wholesale & Retail Trade--Non-Tourism | ($33.90) | $470.90 | 0.00% | 10.90% |
| Recreation Related Wholesale Trade | ($6.40) | $0.00 | 0.00% | 0.00% |
| Recreation Related Retail Trade | ($10.50) | $0.00 | 0.00% | 0.00% |
| General Merchandise Stores | $0.00 | $27.30 | 0.00% | 0.60% |
| Food Stores | $0.00 | $6.80 | 0.00% | 0.20% |
| Eating & Drinking | ($66.20) | $547.20 | 0.00% | 12.60% |
| Miscellaneous Retail | $0.00 | $28.60 | 0.00% | 0.70% |
| Finance, Insurance, Real Estate | ($1,694.70) | ($591.40) | 0.00% | 0.00% |
| Hotels and Lodging Places | $7.80 | $705.20 | 0.40% | 16.30% |
| Laundry, Cleaning and Shoe Repair | $15.90 | ($13.10) | 0.70% | 0.00% |
| Services--Non-Tourism | ($934.10) | ($667.30) | 0.00% | 0.00% |
| Automobile Rental and Leasing | ($63.00) | ($84.70) | 0.00% | 0.00% |
| Automobile Repair and Services | ($61.00) | $133.50 | 0.00% | 3.10% |
| Amusement and Recreation Services, N.E. C. | ($63.20) | $58.60 | 0.00% | 1.40% |
| Total for Commodities in Tourism Estimate (ex, 433, 447,456,465) | ($506.80) | $1,197.40 | 0.00% | 27.70% |
| Commodities for 433, 447, 456, 465 | ($2,661.60) | ($149.80) | 0.00% | 0.00% |
| Estimate of Trade in Tourism Estimate | ($49.70) | $150.90 | 0.00% | 3.50% |
| Government | $705.70 | ($139.80) | 32.00% | 0.00% |
| Other--Misc. | ($202.80) | ($100.60) | 0.00% | 51.10% |
| **Total Net Trade (exports)** | **($2,459.70)** | **($299.50)** | **100.00%** | **100.00%** |
| **Total Posivie Trade Industries (exports)** | **$2,205.10** | **$4,330.30** | | |

Source: USDA IMPLAN data 1985 and 1996

**Table B-32. National Survey on Recreation Local Demographics**

| Personal and Household Characteristics | Jefferson NF (N=1403) | George Washington NF (N=584) | Southern Appalachian Region |
|---|---|---|---|
| Year-round resident | 97.80% | 96.90% | 97.20% |
| Part-time resident | 2.20% | 3.10% | 28.00% |
| Percentage of residents in market area by state | TN 35.3% NC 30.5% VA 17.6% | VA 54.3% WV 22.8% MD 13.4% | GA 24.2% AL 21.4% TN 14.3% |
| Lived in SA entire life | 44.60% | 39.60% | 38.10% |
| Lived in SA 20+ years | 59.70% | 54.70% | 51.70% |
| Lived in SA 10-19 years | 16.90% | 17.50% | 19.00% |
| Lived in SA <10 years | 23.40% | 27.70% | 29.20% |

Source: National Survey on Recreation and the Environment, Version 12, November, 2001 to April, 2002

**Table B-33. National Survey on Recreation Household Characteristics**

| Personal and Household Characteristics | Jefferson NF (N=1403) | George Washington NF (N=584) | Southern Appalachian Region |
|---|---|---|---|
| Remain for job | 7.5 | 12.7 | 7.4 |
| Remain for family | 52.3 | 55.9 | 54.8 |
| Remain for area | 16.8 | 15.9 | 14.6 |
| Remain for other reasons | 23.5 | 15.5 | 23.2 |
| Own 5+ acres of land | 19.8 | 14.7 | 13.1 |
| Age under 30 | 24 | 24.7 | 27.2 |
| Age over 55 | 29.2 | 27.1 | 27.3 |
| Anglo, non-Hispanic | 90.4 | 75.7 | 74.5 |
| Black | 6.2 | 14.7 | 19.7 |
| Hispanic | 2.5 | 4.6 | 3.6 |
| Foreign born | 0.9 | 3.4 | 1.8 |
| Education - 8th grade or less | 9 | 4.6 | 7.3 |
| Education - Bachelor's degree/more | 17.3 | 25.1 | 21 |
| Work a job | 56.8 | 64 | 59.9 |
| Retired | 43.8 | 45 | 39.5 |

Source: National Survey on Recreation and the Environment, Version 12, November, 2001 to April, 2002

**Table B-34. Values of Local Residents from the National Survey on Recreation**

| Personal and Household Characteristics | Jefferson NF (N=1403) | George Washington NF (N=584) | Southern Appalachian Region |
|---|---|---|---|
| Protect streams, lakes, and watershed areas | 94.7/79.8 | 88.6/74.7 | 91.9/79.2 |
| Protect wildlife habitats | 91.8/75.0 | 87.1/67.3 | 89.9/72.7 |
| Protect old growth forests | 85.5/65.3 | 82.5/59.2 | 85.3/66.2 |
| Habitat for wildlife and bird viewing | 85.5/64.1 | 79.6/59.6 | 84.0/61.4 |
| Open areas for wildlife | 77.8/50.8 | 69.9/49.4 | 73.9/48.4 |
| Allow cultural uses of forests | 74.7/55.4 | 70.4/51.7 | 72.5/51.3 |
| Use controlled fires | 74.4/55.8 | 65.0/44.0 | 74.5/53.2 |
| Trail systems for non-motorized recreation | 71.2/39.7 | 71.7/40.0 | 68.7/39.5 |
| Increase law enforcement | 70.3/48.9 | 67.8/44.0 | 67.8/48.2 |
| Restrict mineral removals | 65.6/52.5 | 65.3/47.1 | 64.1/48.6 |
| Designate more areas as wilderness | 65.7/41.7 | 64.5/42.7 | 67.1/41.4 |
| Allow diversity of uses such as grazing, recreation, and wildlife habitat | 66.8/39.1 | 59.2/29.8 | 65.0/36.6 |
| Increase acres in the National Forest | 65.7/43.5 | 56.7/36.8 | 65.2/44.1 |
| Make management decisions at the local level | 65.3/40.6 | 60.8/39.0 | 63.8/37.1 |
| Allow management activities near streams | 60.2/35.2 | 57.3/37.3 | 60.9/35.5 |
| Allow recreation fees that go back to management | 58.0/34.1 | 54.9/30.9 | 58.6/32.9 |
| Increase wildlife for hunting | 52.2/31.5 | 53.5/32.8 | 46.6/27.8 |
| Limit people who visit wilderness | 47.4/25.7 | 50.9/31.0 | 48.0/26.2 |
| Limit people on a river at one time | 45.3/25.7 | 50.3/30.4 | 47.2/28.8 |
| Trade public for private lands to eliminate in holdings or acquire natural areas | 41.8/21.7 | 36.4/19.6 | 44.8/22.9 |
| Expand commercial recreation services | 37.3/20.3 | 35.6/21.3 | 36.3/20.2 |
| Allow harvesting and mining to support communities | 35.8/23.2 | 36.8/20.1 | 36.2/20.1 |
| New paved roads for cars | 31.2/19.7 | 27.5/12.5 | 34.5/20.0 |
| Allow recreational gold prospecting and dredging | 24.1/12.5 | 19.7/8.9 | 24.2/11.7 |
| Expand access for motorized off-highway vehicles | 23.7/13.5 | 20.0/12.1 | 22.8/13.1 |
| Allow commercial leasing of oil and gas rights | 21.5/14.8 | 17.8/11.9 | 19.7/11.6 |

**Table B-35. Management Objectives Rated as Important and Extremely Important**

| Personal and Household Characteristics | Jefferson NF (N=1403) | George Washington NF (N=584) | Southern Appalachian Region |
|---|---|---|---|
| Critical homes for plant and animal species should be pro- | 93.9/71.4 | 91.2/66.4 | 93.3/69.3 (72.5%) |
| More controls on tourism and second home development | 74.6/43.1 | 76.1/43.6 | 75.8/43.4 (40.0%) |
| Endangered Species Act has not gone far enough | 75.2/40.8 | 70.7/39.0 | 73.5/42.4 (57.5%) |
| More important to protect streams for trout than for other species | 51.1/25.3 | 44.3/19.3 | 49.6/23.1 (29.3) |
| More timber production, mining, and other commercial uses | 26.2/9.5 | 27.1/14.0 | 28.2/10.1 (26.6%) |

Source: National Survey on Recreation and the Environment, Version 12, November, 2001 to April, 2002

Source: National Survey on Recreation and the Environment, Version 12, November, 2001 to April, 2002

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# ROADLESS AREA EVALUATIONS

APPENDIX C



## INTRODUCTION

This appendix contains evaluations of the 37 inventoried roadless areas on the Jefferson National Forest. These areas, totaling approximately 152,600 acres, could be recommended to Congress for designation as wilderness. The roadless areas included in the inventory meet the criteria as potential wilderness as set forth in Chapter 7 of FSH 1909.12. An updated Roadless Area Inventory was done as part of the Southern Appalachian Assessment and was finalized on December 17, 1999.

The evaluation reports consider wilderness potential in three main categories:

- **Capability**. The qualities that make a roadless area suitable or not suitable for wilderness;
- **Availability**. An assessment of the non-wilderness resources and demand of the area; and
- **Need**. A consideration of the amount of wilderness already in the area, region and nation.

Existing wildernesses on the Forest amount to 57,760 acres in 11 units, comprising about 8 percent of the total forest area. On a more regional scale, the State of Virginia contains almost 183,000 acres of wilderness within the George Washington and Jefferson National Forests and the Shenandoah National Park. Neighboring Cherokee National Forest contains about 66,390 acres of designated wilderness.

In terms of ecological classification, all of the 37 roadless areas are within the Central Appalachian Broadleaf-Coniferous Forest Meadow Province. Within this province, the Blue Ridge, Northern Ridge and Valley and Cumberland Mountains Sections are represented by at least one roadless area.

Other qualities in common in the 37 areas include: no airstrips, no heliports, and no electronic installations. No more than 20 percent of any area has been harvested within the past 10 years. No area contains more than ½ mile of improved system road for each 1,000 acres of land involved.

**BARBOURS CREEK WILDERNESS ADDITION**

BARBOURS CREEK WILDERNESS ADDITION ID NUMBER: 14503

## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 732 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 732 |

### LOCATION, VICINITY, AND ACCESS

Barbours Creek Wilderness Addition roadless area is located on the Jefferson National Forest, New Castle Ranger District, Craig County, Virginia. The area is generally bounded by lands of the James River Ranger District of the George Washington National Forest to the north and east, Forest Development Road (FDR) 5036 to the west, Barbours Creek to the south, and private land and VA 617 to the southeast. The existing Barbours Creek Wilderness is located on the west side of FDR 5036. The area is found within a portion of U.S.G.S. Virginia Quadrangle Jordan Mines. Major vehicular access is provided by VA 617 along the eastern and southern ends of the area.

There are no improved roads in the area.

There is one unimproved road within the area. A 1.1- mile section of FDR 5036, the Potts Jeep Road, traverses the area. This road is actually on the western edge of this area, but it borders Barbours Creek Wilderness and would likely be within wilderness if this area is designated. Total unimproved road mileage is 1.1 miles.

There are no developed trails within the area.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone or shale with parallel drainages with broad limestone valleys. Included in this area is Potts Mountain with a series of small, steep sideslope drainages. Elevation ranges from approximately 2,260 feet along Barbours Creek to 3,335 feet at a point along the crest of Potts Mountain.

Approximately 75 percent of the area is underlain by Silurian-aged sandstone, and 25 percent is underlain by Braillier and Martinsburg shale. Ridgetop and sideslope soils consist primarily of moderately deep, loamy-skeletal Typic Dystrochrepts (Dekalband Berks series). Footslopes and benches are often Typic Fragiudults (Laidig series) or other more productive colluvial Hapludults. Drainages contain deep loamy-skeletal Typic-Hapludults and Dystrochrepts formed in colluvium from sandstone (Oriskany and Sherando series) or shale (Shelocta series).

Vegetation is mainly broadleaf deciduous species with some yellow pine. Approximately six percent of the area has a site index of 70 or greater indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages, toeslopes, or along floodplains of small to medium sized streams. Here, yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 94 percent of the areas has a site index of 60 or lower, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and east midslope aspects with yellow pine occurring on the driest sites.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such hunting, fishing and illegal ATV use. Approximately 27 percent, or 194 acres, are classified suitable for timber production within the area. Mineral rights are all owned by the U.S.A. There are no federal oil or gas leases.

Barbours Creek is regularly stocked with trout by the Virginia Department of Game and Inland Fisheries.

A trailhead parking lot is located at the intersection off VA 617 and FDR 5036.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 1.1 miles of unimproved road in the roadless area is visually evident and influences ecological processes, as a minimum, in the vicinity of the road. Many old access roads and logging roads still exist and are evident; however, lack of maintenance and use is allowing some of them to become overgrown and regain a more natural appearance. Other old roads are being kept open by frequent illegal ATV traffic.

Most of the area was logged and frequently burned in the late 1800's and early 1900's. Approximately 86 percent of the timber in this area is in the 21-100 year old age class, two percent in the 101 plus years age class, and 12 percent is in the 0-10 year age class. The area has no possible or inventoried old growth.

#### KEY ATTRACTIONS

The area is popular with hunters and anglers. There are no known federally listed threatened, endangered, or sensitive species in this area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Barbours Creek Wilderness Addition Roadless Area appears to be natural but there are signs of recent disturbance. There are 88 acres of 0-10 year old age class timber within area. Unimproved FDR 5036 is on the western edge of this roadless area. If this roadless area becomes an addition to Barbours Creek Wilderness, the road will be within the wilderness and use of the road by vehicular traffic will likely be terminated. Approximately 1.1 miles of this jeep road parallels the roadless area boundary. The road is in poor condition.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Barbour Creek Wilderness Addition Roadless Area is 732 acres in size and is located entirely on National Forest land. The area is a proposed addition to the 5,700 acre Barbours Creek Wilderness. Landform consists of the south side of Potts Mountain down to Barbours Creek. Elevations range from 2,260 feet along Barbours Creek to 3,335 feet along the crest of Potts Mountain. A solitude core area of 120 acres exists adjacent to the boundary with Barbours Creek Wilderness. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximately 16 percent. This number is small due to the small size of the area and its proximity to VA 617. If this roadless area were added to the adjoining Barbours Creek Wilderness, the wilderness would increase in size to 6,110 acres. There is one unimproved road and it is on the boundary of the area. The Potts Jeep Road follows the boundary between the

BARBOURS CREEK WILDERNESS ADDITION

roadless area and wilderness for 1.1 miles. Visitor use to this area is light with only a few jeeps attempting to go up the old road. When combined with the wilderness, visitors feel like they are in an unconfined, natural area. Noise from the surrounding lands can be heard along the southern boundary (state highways, jeep road, private land). Stream improvement work has occurred in Barbours Creek along the edge of the roadless area. This work involved using heavy equipment to place trees in the stream, at strategic locations, to improve the large woody debris component of the stream.

It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost, but unlikely in such a small area. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Barbours Creek Wilderness Addition roadless area does present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as hunting, fishing, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Barbours Creek Wilderness Addition roadless area is in the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Shawvers Run, Barbours Creek, Peters Mountain, Mountain Lake, Kimberling Creek, and Beartown. Within the Southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Two existing wildernesses are in the vicinity. Barbours Creek Wilderness adjoins the western boundary of the roadless area while Shawvers Run Wilderness is located approximately 7.0 air miles to the west.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridge tops. Shale and limestone are the bedrock on the lower slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. Barbours Creek, along the southern boundary, has had stream improvement work. This work involved utilizing heavy equipment to place 50-200 trees in the stream as large woody debris. The U.S. Forest Service Cold Water Fisheries Research Unit has studied the stream to document large woody debris relationships to fish and macroinvertebrates.

Approximately 48 percent of the area is in the Dry Mesic Oak ecological community type. Another 29 percent is in the Dry/Dry-Mesic Oak-Pine type, 17 percent is in the Xeric Pine/ Pine-Oak type, and six percent is in the Mixed/Western Mesophytic ecological community type. There is no possible or inventoried old growth in this area.

No federally listed threatened, endangered, or sensitive species are known to occur within this area.

Barbours Creek was studied and found not eligible for wild and scenic river status. It does contain some wild trout and brook trout, but the Virginia Department of Game and Inland Fisheries lists this stream as a Class VI stream, not containing a significant number of trout or a significant population of warmwater game fish. The stream is stocked and adequate water quality and water temperature allows for a summer carryover of some stocked trout.

Approximately 90 percent of this area is classified as having High Scenic Integrity. There are no acres classified as "A" Scenic Attractiveness.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area, when combined with the existing Barbours Creek Wilderness, makes its preservation as potential wilderness practical. Most of the boundary follows topographic features, property boundary lines, and human improvements such as roads. Surrounding lands are mostly National Forest, except for a private inholding to the north and one to the south. Any activities within the private land just south of the roadless area would be visible from most locations in this area. All minerals are owned by the U.S.A.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows features such as roads and property line boundaries, as well as natural features, such as ridges and streams. The eastern boundary; however, follows the Alleghany/Craig County line which is also the boundary between the George Washington and Jefferson National Forests. This boundary may be difficult to locate since it follows no topographic features. An offset from boundary road VA 617 would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, road alignment, etc.). An offset of approximately 300 feet from the centerline of the road is recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hunting and fishing are the largest recreation attraction to the area. The Potts Jeep Road receives some four-wheel drive jeep use. A parking lot is located near the intersection of FDR 5036 and VA 617. The Potts Jeep Road would be closed to motorized vehicles if this area is designated wilderness.

#### WILDLIFE

The Barbours Creek Wilderness Addition roadless area provides habitat for diverse wildlife species. The featured species are 72 percent bear and 28 percent deer. Barbours Creek is a stocked trout stream. No threatened, endangered, or sensitive wildlife species are known to occur within this roadless area.

#### WATER AVAILABILITY AND USE

Most of this roadless area drains into Barbours Creek. There are no known water storage needs or any existing special use water permit authorizations. Water quality should remain at its current level whether or not the area is designated wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 27 percent, or 194 acres, of the area is classified as suitable for timber production. In the last 10 years, approximately 88 acres of timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 194 acres of suitable lands in this roadless area represents. 06 percent of all lands suitable for timber production on the Jefferson National Forest. All minerals are owned by U.S.A. There are no federal oil or gas leases.

BARBOURS CREEK WILDERNESS ADDITION

### CULTURAL RESOURCES

As of March 1998, 153 acres of this roadless area have been surveyed for cultural resources. There are no known historical or archaeological sites within this area. This area exhibits a low potential for prehistoric and historic resources.

### LAND USES

No special use permit authorizations have been issued for lands in this roadless area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Fire suppression would be primarily by hand tools. Use of motorized and mechanized transport and equipment such as ATV's, bulldozers, and chainsaws would be allowed only upon specific approval by the appropriate line officer. Thus, wildfires would likely attain larger sizes than under current management. Wilderness designation may limit options for containing fires. Gypsy moth infestations are in the vicinity of this roadless area right now. Mortality can be severe (up to 25-30%) and oaks are the preferred hosts. Approximately 77 percent of the area is composed of the Dry Mesic Oak and Dry/Dry Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other National Forest or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

BEAR CREEK ROADLESS AREA ID NUMBER: 14607 BEAR CREEK

| Surface Ownership | Acres |
|---|---|
| Forest Service | 18,211 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 18,211 |

## Overview

### LOCATION, VICINITY, AND ACCESS

The Bear Creek roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Bland, Smyth, and Wythe Counties, Virginia. The area is located west and north of Interstate 81 and approximately five air miles due north of Rural Retreat on the south side of Walker Mountain. Other nearby communities are Marion, to the southwest, and Wytheville, to the southeast. The area is approximately 15.5 miles in length and averages two miles in width and is found within portions of U.S.G.S. Virginia Quadrangles Big Bend, Garden Mountain, Nebo, and Rural Retreat. Major vehicle access is provided by VA 622 and 694 along the western boundary and VA 52 and 621 along the extreme north and east boundary. Forest Development Road (FDR 221) accesses the area from the northeast and VA 625 and FDR 727 provide access from the southcentral portion of the area. There is no vehicular access from the north.

There are five improved roads within the area. FDR 6261 enters the roadless area from VA 694 in Newman Hollow and traverses 4.1 miles into the interior of the area. FDR 6251 also enters from VA 694 and parallels Bear Creek for 0.25 miles to where the road is gated. FDR 727 enters the area in Crawfish Valley, parallel to Reed Creek, and runs for 2.0 miles. About 1.92 miles of this road, within the roadless area, are gated and managed as closed. However, the road receives a considerable amount of administrative use by Forest Service personnel and trail maintaining volunteers. FDR 6361B and 6361C access the northeast end of the area off of FDR 221 for a combined mileage of 1.9 miles. FDR 6361B is the New River Valley Ranger District's disabled hunter access road. Both FDR 6361B and 6361C are gated and managed as closed except for disabled hunter access during hunting season. Total improved road mileage is 8.25 miles.

There is one unimproved road. FDR 804.1 (Ceres Turnpike) is located north of Crawfish Valley and climbs 2.5 miles to the crest of Walker Mountain before continuing onto private land on the north side of the mountain. This road is gated at approximately mile marker 0.5 and is managed as closed. Total unimproved road mileage is 2.5 miles.

Five Forest Development Trails (FDT) are located in the area. The Appalachian National Scenic Trail (FDT 1) traverses the area in a north-south direction from near Davis Valley to the north side of Tilson Gap, a distance of approximately 8.0 miles. The Bear Creek Trail (FDT 159) enters the area from where FDR 6251 is gated and parallels Bear Creek for 3.5 miles. The Ranger District is currently considering proposals to relocate a portion of this trail at some point in the near future. The Crawfish Trail (FDT 6506) is a 10 mile loop trail and is coincident with improved FDR 727 for approximately 1.92 miles before continuing southwest paralleling Reed Creek. The trail then intersects with the Bear Creek Trail before climbing onto Brushy Mountain and down Channel Rock Hollow. The Walker Mountain Trail (FDT 6501) follows an old Appalachian National Scenic Trail location. The trail is 12.3 miles in length and runs from the upper end of Reed Creek up onto Walker Mountain at Redding Gap. The trail then heads west to Tilson Gap and east along the crest of Walker Mountain to VA 621.. FDT 804.1, the Ceres Trail, runs coincident with FDR 804.1. This road/trail is 2.5 miles in length and runs from FDR 727 to the south up to the crest of Walker Mountain. The Appalachian National Scenic Trail is designated for foot travel only while all other trails are designated for foot, horse, and mountain bike use. Total maintained trail mileage is 36.3 miles.

Old access and logging roads still exist within the area, some of which have become overgrown and impassable to anything but foot traffic.

BEAR CREEK

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Bear Creek roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. Bear Creek roadless area is characterized by northeast/southwest trending ridges of sandstone and shale with parallel drainages interspersed with shale valleys. Included in this area are Walker, Brushy, and Little Brushy Mountains. Slopes vary from very steep on sideslopes to nearly flat in the large drainages. Drainage density is high on the slopes of Brushy and Little Brushy Mountains and on the lower slopes of Walker Mountain. Drainages are narrow and deep with steep sideslopes in these locations. The area contains the headwaters of three major streams that flow through the area; Bear Creek, Reed Creek, and Gullion Fork. Elevation ranges from approximately 2360 feet in Six Valley adjacent to FDR 221 to 3955 feet at a point along the crest of Walker Mountain.

The roadless area is forested by eastern deciduous and coniferous species. Approximately 26 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, white pine, and red maple dominate the overstory. The remaining 74 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites. The area also contains several of Virginia's few remaining pure stands of table mountain pine. This species requires fire to reproduce and is becoming increasingly uncommon within its natural range due to fire exclusion.

### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting, fishing, hiking, horseback riding, mountain biking, and dispersed camping associated with hunting. The Appalachian National Scenic Trail receives a high amount of use. The popularity of the Channel Rock/Crawfish Trail as a horseback riding and mountain biking trail has been steadily increasing in recent years. Approximately 34 percent, or 6,184 acres, of the area are classified as suitable for timber production. A portion of the 'Beast of East', a 300- mile endurance race involving canoeing, hiking, and mountain biking, was run through a portion of the roadless area in June 1998 and again in May 1999. Hiking and mountain biking were featured through this area. Dispersed recreation uses, primarily mountain biking and horseback riding, have increased substantially within the Crawfish Valley and Bear Creek areas of this roadless area in the past several years. The Forest Service periodically acquires shale, for road maintenance purposes, from an existing shale pit off of a non-system road 0.35 miles north of FDR 221 within the roadless area. There are 243 acres of privately owned (outstanding or reserved) mineral rights underlying Federal surface ownership.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 8.25 miles of improved roads, 2.5 miles of unimproved road, and 36.3 miles of maintained trail within the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads and trails. Old access and logging roads still exist and are evident. Some are becoming overgrown and are regaining a more natural appearance. Some illegal ATV traffic is evident in several areas along the southern boundary of the area and along FDR/FDT 804.1.

Most of the area was cut over and frequently burned in the late 1800's and early 1900's.

Approximately 74 percent of the timber is in the 21-100 year old class, 11 percent is in the 101 plus years class, two percent in the 0-10 year old class, and three percent in the 11-20 year old class. The area contains 1262 acres of possible inventoried old growth.

Featured species for the area is 87 percent turkey and 13 percent deer. Wildlife openings and old fields, totaling approximately 70 acres, are located primarily along and above Reed Creek. The openings and fields are maintained through the regular use of prescribed fire and mowing. Two artificial waterholes have been created for wildlife use within the area. While these waterholes may disturb the natural ecological processes of the area, they also enhance wildlife populations and are gaining an increasingly natural appearance over time.

White pine and shortleaf pine progeny test sites are located on the western end of the area. The planted trees in these test areas are planted in rows, much like in a plantation, and may influence ecological processes to some degree. The Davis Path Trail Shelter, and associated privy, are maintained facilities located on the Appalachian National Scenic Trail on the southwestern end of the area. Maintenance of the shelter is expected to continue regardless of the future designation of the Bear Creek roadless area.

Foglesong Cemetery is located on the south side of Reed Creek in Crawfish Valley and contains a dozen gravesites on a 0.04 acre private tract of land. There is also a single unmaintained gravesite in Davis Hollow. No roads currently lead to either cemetery site.

Trout stocking of Reed Creek occurs within the roadless area off of FDR 727.

The area is essentially bounded on three sides by private land. This land is comprised of fairly large tracts of forestland, small woodlots, residences, and structures and activities related to farming. A large tract of National Forest land adjoins the northeastern section of the roadless area boundary.

#### KEY ATTRACTIONS

The varied types of trails within the area are a key attraction, particularly the Crawfish Trail and Appalachian National Scenic Trail. The area is also highly popular with hunters, especially in the Bear Creek and Crawfish Valley areas. Reed Creek is a stocked trout stream and very popular with local anglers. Fish release occurs within the roadless area boundary. The golden-winged warbler is known to exist just outside the roadless area boundary in Crawfish Valley. It may also occur within the roadless area boundary. This species is listed on the Department of Interior's "Birds in Jeopardy" list and the Forest's locally rare species list. The warbler requires open, brushy areas. Tennessee dace is known to exist in Bear Creek and Reed Creek and is listed by the Forest Service as a federally sensitive species. No federally listed threatened, endangered, or sensitive species are known to occur within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the Bear Creek roadless area appears to be natural but there are signs of disturbance. There are 10.75 miles of improved and unimproved roads and 36.3 miles of maintained trail within the area. If this roadless area becomes wilderness, the improved and unimproved roads would be in wilderness and removed from the forest's transportation system. Some old access and logging roads in this roadless area have become overgrown and impassable, causing minimal impact on the area's natural ecological processes. Some illegal ATV traffic occurs in several areas along the southern boundary and along FDR/FDT 804.1, north of Crawfish Valley.

BEAR CREEK

While the maintenance of the approximately 70 acres of wildlife openings and old fields along Reed Creek has affected natural ecological processes, the range of influence is limited in extent and with the cessation of maintenance activities, natural processes will quickly resume. The Davis Path Trail Shelter is a developed recreational facility located on the Appalachian National Scenic Trail. Maintenance of this facility is expected to continue regardless of the future designation of the Bear Creek roadless area.

The Foglesong Cemetery is periodically maintained by descendants of the family. The single gravesite in Davis Hollow is unmaintained. There are 308 acres of 0-10 year old age class and 518 acres of 11-20 year age class within this roadless area as of March 1998.

Trout stocking occurs within the roadless area and this practice would be discontinued should the area be designated wilderness.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Bear Creek roadless area is 18,211 acres in size and is located entirely on National Forest land. The area is generally bounded to the north by Walker Mountain and Brushy and Little Brushy Mountains to the south. Elevations range from approximately 2360 feet in Six Valley adjacent to FDR 221 to 3955 feet at a point along the crest of Walker Mountain. A solitude core area of 9,539 acres exists in the central, northern, and southern portions of the roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximate 52 percent. Visitor use of the area can be described as moderate to high during the various hunting seasons and moderate the rest of the year. The Channel Rock/Crawfish Trail and Appalachian National Scenic Trail are popular yearlong. The visitor can expect to encounter other visitors along the vast trail system in the area and at the Davis Path Trail Shelter. The further one gets away from improved roads, maintained trails, and facilities, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance. However, some areas may be impacted around the periphery of the area by noises associated with traffic on Interstate 81 and VA Routes 622, 694, 625, 621, 52 and FDR 727 or from activities on adjoining private land, which may reduce the feeling of solitude and isolation. Noises associated with aircraft flying to and from a nearby airport may impact areas along the southern and western boundaries of the area.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Bear Creek roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, hiking, fishing, mountain biking, horseback riding, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE AND ENDANGERED PLANTS AND ANIMALS)

Bear Creek roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (18,211 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43

roadless areas are classified within this subsection. BEAR CREEK

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridgetops while shale is found in the valleys and lower slopes. Minor amounts of carbonate rocks (limestone or dolomite) may also be present. Monster Rock, a massive outcrop jutting from the ridgetop, is an interesting geologic feature located along the eastern end of the Walker Mountain Trail.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The Appalachian National Scenic Trail traverses the west-central portion of the roadless area and presents vistas of the surrounding area from several high points within the area. There are several stands of table mountain pine within the area, which offer opportunities for scientific and educational purposes.

An old homesite, the Mozer Place, is located adjacent to the Crawfish Trail in Crawfish Valley.

Much of the area is comprised of ridgetop and midslope ecological community types. The Dry Mesic Oak type comprises approximately 55 percent of the area. The Dry and Dry-Mesic Oak-Pine type occupies 31 percent and the Xeric Pine and Pine-Oak type occupies 11 percent of the area. The remainder of the area is composed of the Mixed and Western Mesophytic, Conifer-Northern Hardwood, and other minor ecological community types.

There are 1262 acres of inventoried possible old growth. The ecological community types represented are: 254 acres Dry and Dry-Mesic Oak-Pine (0 acres suitable) which represents five percent of the Forest's total, 856 acres Dry Mesic Oak (108 acres suitable) which represents three percent of the Forest's total, 49 acres Mixed and Western Mesophytic (19 acres suitable) which represents one percent of the Forest's total, and 24 acres Xeric Pine and Pine-Oak (0 acres suitable) which represents 2.6 percent of the Forest's total.

The Tennessee dace (sensitive) is known to occur in Reed Creek and Bear Creek. The golden-winged warbler (locally rare) is known to occur just outside the roadless boundary; however, it may also occur within the boundary.

The entire roadless area is classified as having high existing scenic integrity.

The Beartown Wilderness is located approximately 6.25 air miles north of the roadless area.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Bear Creek roadless area makes its preservation as potential wilderness reasonably practical. Most of the boundary follows property lines or improved roads. Boundaries would need to be established on the ground where the boundary joins other National Forest lands, particularly where the boundary falls along sideslopes above and below Reed Creek and the floodplain along Gullion Fork. At 28.5 square miles in size, the Bear Creek roadless area is the largest such area on the Jefferson National Forest. The remote setting is protected by Walker Mountain to the north and Brushy and Little Brushy Mountains to the south. Although surrounding private lands contrast with the area, the effects are generally limited to the periphery along the boundary of the roadless area. There are 243 acres of privately owned mineral rights within the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service boundary lines and improved roads delineate most of the roadless area boundary. An offset from Virginia Route's 622, 694, 625, 621, and 52 and FDR's 221 and

BEAR CREEK

723 would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.). An offset of 300 feet from the centerline of State Roads and 100 feet from FDR's is recommended. Defining the on-the-ground boundary where the roadless area adjoins other National Forest land would be difficult, time consuming and expensive, particularly in areas north and south of Reed Creek and along the floodplain of Gullion Fork.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

The Davis Path Trail Shelter is the only developed recreation site within this roadless area. The Appalachian National Scenic Trail and the 28.3 miles of multi-purpose trails attract a moderate to high level of use. Hiking, hunting, fishing, mountain biking, horseback riding, and dispersed camping are the largest recreation attractions to the area. Interstate 81 provides relatively easy access from several exits. The communities of Rural Retreat, Marion, and Wytheville are all within a 30- minute drive of the area. Established recreation uses that would be discontinued should this area be designated a wilderness include: (1) FDR 6361B would be blocked from motorized use and the road would no longer serve as access for disabled hunters, (2) no further trout stocking would occur in that portion on Reed Creek within the roadless area boundary, and (3) mountain biking would be discontinued.

#### WILDLIFE

The Bear Creek roadless area provides habitat for a diversity of wildlife species. Featured species of the area is 87 percent turkey and 13 percent deer. The golden-winged warbler (locally rare) inhabits old fields and openings and the Tennessee dace (sensitive) occurs in Reed Creek and Bear Creek. There are 70 acres of maintained wildlife clearings and old fields in the area, all located above and along Reed Creek. Sample densities indicate that these 70 acres could support 10 pairs of golden-winged warblers. Active maintenance of this habitat would discontinue should this area be designated a wilderness. The result would be a loss of suitable habitat for the warblers and the warblers would be expected to move out of the area. Maintenance of the two artificial wildlife waterholes would also cease.

#### WATER AVAILABILITY AND USE

The roadless area encompasses the headwaters of three major cool water streams that flow through the area: Bear Creek, Reed Creek, and Gullion Fork. There are no known water storage needs or any existing special use water permit authorizations. Reed Creek has good water chemistry and a good macroinvertebrate monitoring score. Gullion Fork has good water chemistry and a poor/fair macroinvertebrate monitoring score. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 34 percent of the area, or 6,184 acres, is classified as suitable for timber production. In the past 20 years, approximately 954 acres of timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 6,184 acres of suitable lands within this roadless area represents approximately two percent of all lands suitable for timber production on the Jefferson National Forest. Private subsurface minerals ownership is held on 243 acres within this area. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of 1999. The potential for energy minerals, primarily natural gas, is

estimated to be low to moderate. The area was leased for Federal oil and gas in the 1980's; however, no oil or gas wells were drilled and the Federal leases have since expired. The potential for other Federal leasable minerals, including metallic minerals, is estimated to be low. Use of the shale borrow pit adjacent to a non-system road north of FDR 221 would no longer be used if this area is designated a wilderness.

#### CULTURAL RESOURCES

Approximately 1,085 acres have been surveyed for cultural resources, as of March 1998, within the roadless area. Nine prehistoric transient camps have been identified and recorded. The potential for historic farmsteads-homesteads is also extremely high within the area.

#### LAND USES

One special use authorization has been issued within this roadless area. The 300- mile endurance race, the 'Beast of the East', occurred in June 1998 and May 1999. One family cemetery occupies 0.04 acres on the south side of Reed Creek in Crawfish Valley. Another individual gravesite is located near Davis Hollow. If this roadless area is designated a wilderness, no further special uses would be authorized; however, cemetery maintenance would be expected to continue.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is essentially bounded by private lands except for a small section in the northeastern section of the area. Wilderness designation may limit options for containing fires on private and/or federal lands. The Bear Creek roadless area is expected to be in the generally infested area for gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 86 percent of the area is composed of the Dry Mesic Oak and Dry and Dry-Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**BEARTOWN WILDERNESS ADDITION A**

BEARTOWN WILDERNESS ADDITION A ID NUMBER: 14606

## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 1,369 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 1,369 |

### LOCATION, VICINITY, AND ACCESS

Beartown Wilderness Addition A roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Tazewell County, Virginia. The area is located east of VA 16 and north of Forest Development Road (FDR) 222 and is found within portions of the U.S.G.S. Virginia Quadrangles Tazewell South and Hutchinson Rock. The area is generally bounded on the east by the Beartown Wilderness, private land to the north and west, and a combination of FDR 222 and private land to the south. Major vehicle access is provided by VA 16 to FDR 222 from the west and VA 42 to VA 625 to FDR 222 from the south and east.

There are no improved or unimproved roads within the area.

There are an estimated three to five miles of old logging roads and informal trails in this roadless area. Many are passable and kept open by illegal ATV traffic. These old roads and trails also receive a great deal of foot traffic, primarily during hunting season.

There are no developed, maintained trails within the area.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Beartown Wilderness Addition A roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone and shale with parallel drainages interspersed with shale valleys. Minor amounts of limestone are interbedded with the sandstone on the upper slopes. Included in this area are Clinch Mountain and Chestnut Ridge. Slopes vary from very steep on sideslopes to gentle near the larger drainages. Drainage density is generally high in this area. The headwaters of several drainages are located within the roadless area that flow into Roaring Fork and Laurel Creek, both major streams. Elevations range from approximately 2320 feet at a point along the southern boundary to 3800 feet at a point along the crest of Clinch Mountain in the extreme northeast corner of the roadless area.

Vegetation is mainly broadleaf deciduous species with some yellow pine. Approximately 25 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 75 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

### CURRENT USE

Hunting is the primary recreational activity within the area. Dispersed camping, associated with hunting, is popular adjacent to FDR 222 and the periphery of the roadless area. Approximately 41 percent, or 557 acres, of the area are classified as suitable for

timber production. There are 1246 acres of privately owned (outstanding or reserved) mineral rights underlying Federal surface ownership.

Illegal ATV use is widespread within the roadless area.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

Old logging roads and informal trails in the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads and trails. While many were seeded years ago, or are naturally regenerating and regaining a more natural appearance, some remain open through frequent illegal ATV traffic. Most of the area was cut over and frequently burned in the late 1800's and early 1900's. The predominant age range for timber in the area is 21 to 100 years, which represents approximately 98 percent of the area. The area has 285 acres of possible inventoried old growth.

The southeastern portion of the area is bounded by private land, which contains numerous hunting and seasonal cabins. The northern boundary follows the crest of Clinch Mountain and a private land boundary. Private land on the north side of Clinch Mountain is steep and rugged and several roads lead up to the crest of the mountain and wind their way along the ridgetop. The roadless area also adjoins the western boundary of Beartown Wilderness.

Featured species for the area is bear. No wildlife openings or recently seeded roads exist.

#### KEY ATTRACTIONS

The area is popular with hunters, particularly during the bear, deer, and turkey seasons. Trout fishing is also popular in the general area. Local streams offer anglers the opportunity to fish for stocked and/or wild trout. No Federally threatened, endangered, or sensitive species are known to exist within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Most of the Beartown Wilderness Addition A roadless area appears to be natural but there are signs of disturbance, including the estimated three to five miles of old logging roads and informal trails in the area. Illegal ATV use is a recurrent concern in and around the roadless area, which influences ecological processes, as a minimum, in the vicinity of the illegal use. There is evidence of past manganese mining in the area; however, these areas are being reclaimed naturally and not easily recognizable by the casual observer.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Beartown Wilderness Addition A roadless area is 1,369 acres in size and is located entirely on National Forest land. The area is a proposed addition to the 5,609 acre Beartown Wilderness. Elevations range from approximately 2,320 feet at a point along the southern boundary to 3,800 feet at a point along the crest of Clinch Mountain in the extreme northeast corner of the roadless area. A solitude core area of 704 acres exists in the north and central portion of the roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximately 51 percent. If this roadless area were added to the adjacent Beartown Wilderness, the core area size would represent a much higher percentage. Visitor use to this area is moderate

BEARTOWN WILDERNESS ADDITION A

to high during the hunting seasons and low during the remainder of the year. When combined with the existing wilderness, visitors feel like they are in an unconfined, natural area. Areas along the western and southern boundaries of the roadless area may be impacted from noises associated with VA 16, FDR 222, FDR 886, and illegal ATV traffic, which may reduce the feeling of solitude and isolation. The entire roadless area is on the south side of Clinch Mountain with no significant intervening ridge or mountain along the southern boundary to shield the visitor from noises or sights associated with roads or private land. Opportunities for solitude may be limited to the central and northeastern portions of the roadless area.

Much of the terrain in this roadless area is steep and rugged, offering the off-trail hiker/ hunter good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Beartown Wilderness Addition A Roadless Area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, fishing, hiking, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE AND ENDANGERED PLANTS AND ANIMALS)

Beartown Wilderness Addition A Roadless Area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (1,369 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridgetops while shale is found in the valleys and lower slopes. This roadless area lies on the south flank of Clinch Mountain, just west of the Beartown Wilderness where Clinch Mountain terminates and makes a transition into an unusual geologic feature: Burkes Garden, a breached, dome-shaped geologic structure with a dramatic topographic expression.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area's large relief and highly dissected topography creates a wide range of ecological types from hot, dry windswept ridgetops to cool, moist, protected coves.

The vast majority of the area, approximately 93 percent, is in the Dry Mesic Oak ecological community type. Four percent is in the Dry and Dry-Mesic Oak-Pine type and the remaining three percent is in the Mixed and Western Mesophytic type.

There are 285 acres of inventoried possible old growth. The ecological community type represented is: 285 acres Dry Mesic Oak (20 acres suitable), which represents one percent of the Forest's total for this community type.

The entire area is classified as having high existing scenic integrity.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Beartown Wilderness Addition A roadless area, when combined

with the adjacent Beartown Wilderness, makes its preservation as potential wilderness practical. The eastern boundary of the roadless area adjoins Beartown Wilderness. The remaining boundaries follow property boundary lines and roads. Although surrounding private lands contrast with the area, the effects are limited to the periphery along the boundary of the roadless area. There are many hunting cabins located on private lands along FDR 222 adjacent to the southern boundary of the area. In several locations along the crest of Clinch Mountain, the visitor would be able to view farming activities and small residential areas north of the roadless area in Thompson Valley. The private land along the southern boundary does have the potential to impact wilderness attributes. There are 1246 acres of privately owned mineral rights within the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows human made features such as roads and property line boundaries. The eastern boundary adjoins the existing Beartown Wilderness. The southern, and a portion of the western, boundary follows FDR 222 and VA 16. An offset from these roads would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the roads (brush clearing, grading, paving, culvert installation and cleaning, gravel placement, etc.). An offset of 300 feet from the centerline of the roads is recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hunting, dispersed camping, and illegal ATV use are the largest recreation attractions to the area. The Appalachian National Scenic Trail is located several miles to the east of the roadless area. No significant impact to current legal recreation use would be expected to occur should this area be designated a wilderness.

#### WILDLIFE

The Beartown Wilderness Addition A roadless area provides habitat for a diversity of wildlife species, including the featured species, bear. There are no wildlife habitat improvement projects within the area.

#### WATER AVAILABILITY AND USE

The roadless area encompasses the headwater tributaries of two major drainages: Roaring Fork and Laurel Creek. There are no known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 41 percent of the area, or 557 acres, is classified as suitable for timber production. In the past 20 years, no timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 557 acres of suitable lands within this roadless area represents approximately 0.17 percent of all lands suitable for timber production on the Jefferson National Forest. Private subsurface minerals ownership is held on 1246 acres within this area. Private oil and gas leases were issued on some private mineral rights in the 1980's, including at least some private land, which the Federal government subsequently acquired (tracts J-1482 and J-1417). No oil or gas wells were drilled in this area and the lease expired. No Federal oil and gas leases or other Federal mineral leases are in effect within this area as of 1999. The potential for energy minerals, primarily natural gas, is

BEARTOWN WILDERNESS ADDITION A

estimated to be low to moderate. The potential for other Federal leasable minerals, including metallic minerals, is estimated to be low.

#### CULTURAL RESOURCES

No known archaeological or historical sites have been identified within this roadless area. As of March 1998, no cultural resource surveys have been performed; however, the topography of the area indicates there is potential for encountering historic and prehistoric sites.

#### LAND USES

No special use permit authorizations have been issued in this roadless area.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands on the north, south, and west perimeters. Wilderness designation may limit options for containing fires on private and/or federal lands. The Beartown Wilderness Addition A roadless area is expected to be in the generally infested area for Gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 97 percent of the area is composed of the Dry Mesic Oak type and Dry and Dry-Mesic Oak-Pine forest types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

BEARTOWN WILDERNESS ADDITION B ID NUMBER: 14699



## Overview

* These acres were purchased by the National Park Service for the benefit of the Appalachian National Scenic Trail and are managed by the Forest Service under a Memorandum of Understanding.

| Surface Ownership | Acres |
|---|---|
| Forest Service | 3,158 |
| Private | 50 |
| Park Service* | 38 |
| TOTAL | 3,246 |

### LOCATION, VICINITY, AND ACCESS

Beartown Wilderness Addition B roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Bland and Tazewell Counties, Virginia. The area is located east of VA 16 and north of Forest Development Road (FDR) 222 and is found within a portion of the U.S.G.S. Virginia Quadrangle Hutchinson Rock. The area is generally bounded on the east by private land and a portion of the Garden Mountain roadless area, Beartown Wilderness to the north, and private land to the west. FDR 222 and VA 625 generally make up the southern boundary. Major vehicle access is provided by VA 16 to FDR 222 from the west and VA 42 to VA 625 to FDR 222 from the south and east.

There is one improved road within the area. An access road (FDT P4), with permanent right-of-way, enters the roadless area from FDR 222 in the southcentral portion of the area. The road is approximately 0.17 miles in length and accesses a 50-acre private inholding. FDR 886, an improved road that traversed the extreme western end of the area for 1.0 mile, was recently closed to all vehicular traffic and has been dropped from the Forest's transportation system. Total improved road mileage is 0.17 miles.

One unimproved road is located within the roadless area. Unimproved FDR 631, the Bear Hole Hollow Road, enters the area from FDR 222 and runs northwest for one mile, where it is blocked from vehicle use. This 1.0 mile road is heavily used during hunting season. The remaining 1.1 miles of the old roadbed, beyond the closure point, leads to the Roaring Fork Trail at the Beartown Wilderness boundary on the Tazewell/Bland County line. Total unimproved road mileage is 1.0 mile.

There are an estimated 10 to 16 miles of old logging roads and informal trails in this roadless area. Many are passable and kept open by illegal ATV traffic. These old roads and trails also receive a great deal of foot and ATV traffic, primarily during hunting season.

The Appalachian National Scenic Trail is the only Forest Development Trail (FDT 1) found within the roadless area. The trail winds its way in a northerly direction from FDR 222 where it connects with Chestnut Ridge, then follows Chestnut Ridge in a northeasterly direction, a distance of approximately 4.7 miles. Total maintained trail mileage is 4.7 miles.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Beartown Wilderness Addition B roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone and shale with parallel drainages interspersed with shale valleys. Minor amounts of limestone are interbedded with the sandstone on the upper slopes. Included in this area are Chestnut Ridge and Clinch Mountain. Slopes vary from very steep on sideslopes to gentle near the larger drainages. Drainage density is generally high in this area. The headwaters of several tributary drainages are located within the roadless area that flow into Lick Creek

BEARTOWN WILDERNESS ADDITION B

and Laurel Creek, both major streams. Elevations range from approximately 2320 feet at a point along the southern boundary to 4400 feet at a point on Chestnut Knob along the Bland and Tazewell County line. The soils at the highest elevations are considered to have a frigid temperature regime. This means soil temperatures are cooler and growing seasons shorter at these higher elevations. Because of these cooler temperatures, the soils typically have thicker organic surface layers than soils at the lower elevations.

Vegetation is mainly broadleaf deciduous species with some yellow pine. Approximately 35 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 65 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting and hiking. Dispersed camping, associated with hunting, is also popular adjacent to FDR 222 and several spots along Forest Service Road 631. An informal, unimproved trailhead and parking area is located on the west side of the Roaring Fork and FDR 886 intersection. The Appalachian National Scenic Trail receives a high amount of use. Associated with this trail is an over-flow parking lot located within the roadless area approximately 200 feet west of where the Appalachian Trail crosses FDR 222. Approximately 56 percent, or 1,818 acres, of the area is classified as suitable for timber production. There are five special use permit authorizations in the area, including four waterline permits and one road use permit. The waterline permits involve spring boxes and tubes running from Laurel Branch to cabins on private property adjacent to the area. The road permit allows access across National Forest land to private property. The Forest Service and Virginia Department of Transportation periodically acquire shale, for road maintenance purposes, from several existing shale pits adjacent to FDR 222 within the roadless area. There are 671 acres of privately owned (outstanding or reserved) mineral rights underlying Federal surface ownership.

Illegal ATV use is widespread within the roadless area.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 0.17 miles of improved, 1.0 miles of unimproved road, 4.7 miles of maintained trail, and numerous old roads and informal trails in the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads and trails. Most of the area was cut over and frequently burned in the late 1800's and early 1900's. The predominant age range for timber in the area is 21 to 100 years, which represents approximately 69 percent of the area. The area has 307 acres of possible inventoried old growth.

While some of the old logging roads and informal trails were seeded years ago, or are naturally regenerating and closing in, some remain open through frequent illegal ATV traffic.

Featured species for the area is approximately 67 percent turkey and 33 percent bear. The roadless area contains wildlife openings, totaling approximately 152 acres, located primarily along Chestnut Ridge. These openings are maintained and kept open by the

Forest Service, with support from the Virginia Department of Game and Inland Fisheries, Appalachian Trail Conference and Piedmont Appalachian Trail Hikers, mainly through the application of prescribed fire. Two artificial waterholes have been created for wildlife use within the area. While these waterholes may disturb the natural ecological processes of the area, they also enhance wildlife populations and are gaining an increasingly natural appearance over time.

The Chestnut Knob trail shelter and associated privy, located adjacent to the Appalachian National Scenic Trail at the northeast end of the roadless area, is a maintained rock constructed shelter with a tin roof. An old homesite is located about midway along Chestnut Ridge, which still has the foundation of an old springhouse intact, along with a small pond. Near this homesite are several old fencerows, which continue to deteriorate over time.

Many hunting cabins are located on private property adjacent to FDR 886 and VA 625.

The shale borrow pits and the over-flow Appalachian Trail trailhead parking lot, situated on the north side of FDR 222, are readily evident.

The roadless area is bounded to the north by Beartown Wilderness, to the west by private land, a combination of private and federal ownership to the south, and a combination of private land and the Garden Mountain roadless area to the east.

#### KEY ATTRACTIONS

The area is extremely popular with hunters, particularly during bear and deer seasons. Trout fishing is also popular in the general area. Local streams offer anglers the opportunity to fish for stocked and/or wild trout. The Appalachian National Scenic Trail is a key attraction to the area and offers good views all along Chestnut Ridge and the view of Burkes Garden, to the northeast of Chestnut Knob, is impressive. No Federally listed threatened, endangered, or sensitive are known to exist within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is somewhat affected by outside forces. Much of the Beartown Wilderness Addition B roadless area appears to be natural but there are signs of disturbance. There are 0.17 miles of improved road, 1.0 miles of unimproved road, 4.7 miles of maintained trail, and an estimated 10 to 16 miles of old logging roads and informal trails in the area. There is a 50-acre private inholding, and associated access road off of FDR 222, in the south central portion of the roadless area. The inholding contains two cabins. If this roadless area becomes an addition to the Beartown Wilderness, the unimproved road would be in wilderness and removed from the Forest's transportation system. The improved road, which accesses the 50-acre private inholding, would remain open. The native stone and tin roofed trail shelter, and associated privy, on Chestnut Knob is located in an open, grassed area near the Beartown Wilderness boundary. Maintenance of these facilities is expected to continue regardless of the future designation of the Beartown Wilderness Addition B roadless area. The extensive system of wildlife openings along Chestnut Ridge affects natural ecological processes by breaking up what would otherwise be continuous forest canopy. This favors some wildlife species and offers excellent views for recreationists.

There are five authorized special use permits in the area. These involve four spring boxes and tubes diverting water from Laurel Branch to cabins on private property just beyond the boundary of the roadless area, and one road use permit. The degree to which the water diversion is affecting ecological processes and conditions of Laurel Branch and the

BEARTOWN WILDERNESS ADDITION B

surrounding area is unknown.

Illegal ATV use is a recurrent concern in and around the roadless area, which influences ecological processes, as a minimum, in the vicinity of the illegal use. No timber has been harvested from the area in the past twenty years. There is evidence of past manganese mining in the area; however, these areas are being reclaimed naturally and are not easily recognized by the casual observer.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Beartown Wilderness Addition B roadless area is 3,246 acres in size of which 3,208 acres are within the proclaimed boundary of the Jefferson National Forest. The remaining 38 acres are outside the proclamation boundary. These acres were purchased by the National Park Service for the benefit of the Appalachian National Scenic Trail and are managed by the Forest Service under a Memorandum of Understanding. There is a 33 acre private inholding located within the proclamation boundary. The roadless area is a proposed addition to the 5,609 acre Beartown Wilderness. Elevations range from approximately 2,320 feet at a point along the southern boundary to 4,400 feet at a point on Chestnut Knob along the Bland and Tazewell County line. A solitude core area of 1,574 acres exists in the north, central, and eastern portions of the roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximately 49 percent, of which 217 acres are Semi-Primitive Motorized and 1,357 acres are Semi-Primitive Non-Motorized. If this roadless area were added to the existing wilderness, the core area size would represent a much higher percentage. Visitor use to this area is high during the spring and fall hunting seasons and light during the rest of the year, except that use of the Appalachian National Scenic Trail is moderate to high year-round. When combined with the existing wilderness, visitors feel like they are in an unconfined, natural area, particularly when away from roads and informal trails. Areas along the western, southern, and eastern boundaries of the roadless area may be impacted from noises associated with VA 625, FDR's 222, and P4 and unimproved FDR 631, activities on adjoining private land, and illegal ATV traffic which may reduce the feeling of solitude and isolation. The area is heavily influenced by the activities on the patchwork of private land along the lower reaches of the area. The entire roadless area is on the south side of Chestnut Ridge with no significant ridge or mountain along the southern boundary to shield the visitor from noises and sights associated with roads or private land. Opportunities for solitude may be limited to the central portion of the roadless area.

Much of the terrain in this roadless area is steep and rugged, offering the off-trail hiker/ hunter good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Beartown Wilderness Addition B roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, off-trail hiking, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Beartown Wilderness Addition B roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (3,396 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312

acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridgetops while shale is found in the valleys and lower slopes. This roadless area lies on the outer flank of an unusual geologic feature: Burkes Garden, a dome shaped geologic structure. Over geologic time, the top of the dome has been breached (eroded) such that only the steep sides of the original arch of rocks are present today. The valley floor within Burkes Garden is composed of older limestone rocks, which were once deep within the core of the dome but are now exposed at the surface. Along the northeast edge of this roadless area, the Appalachian National Scenic Trail follows the rim on the southern part of Burkes Garden and offers a view across the great bowl of Burkes Garden. Burkes Garden is a classic, textbook geologic feature.

Examples of Arthrophycus, the remains of ancient worm burrows or feeding trails, may be observed on some of the gray sandstones along the Appalachian Trail. They look like long, finger shaped branches that occur on the flat bedding surfaces of the rock.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area's relief and moderately dissected topography creates a wide range of ecological types from hot, dry windswept ridgetops to cool, moist, protected coves.

The vast majority of the area, approximately 76 percent, is in the Dry Mesic Oak ecological community type. Fifteen percent is in the Mixed and Western Mesophytic type, four percent Northern Hardwood type, and the remainder is a mix of the Conifer-Northern Hardwood, Dry and Dry-Mesic Oak-Pine, and Other Minor types.

The area contains 307 acres of possible inventoried old growth. The ecological community types represented are: 4 acres Dry and Dry-Mesic Oak-Pine (4 acres suitable) which represents less than one percent of the Forest's total, 266 acres Dry Mesic Oak (73 acres suitable) which represents one percent of the Forest's total, and 37 acres Mixed and Western Mesophytic (37 acres suitable) which represents one percent of the Forest's total.

Remnants of an old homesite are still evident adjacent to the Appalachian National Scenic Trail along Chestnut Ridge. The maintained wildlife openings along the crest of Chestnut Ridge give the appearance of a high elevation western setting.

Approximately 82 percent of the area is classified as having high existing scenic integrity.

The Beartown Wilderness Addition B roadless area is bounded on the east by the Garden Mountain roadless area, Beartown Wilderness to the north, and Beartown Wilderness Addition A roadless area is nearby to the west.

### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Beartown Wilderness Addition B roadless area, when combined with the existing Beartown Wilderness, makes its preservation as potential wilderness practical. The northern boundary of the roadless area adjoins Beartown Wilderness. The remaining boundaries follow property boundary lines and roads. Although surrounding private lands contrast dramatically with the area, the effects are limited to the periphery along the boundary of the roadless area. There are many hunting cabins located on private lands along FDR 222 and in the vicinity of FDR P4. In several locations along Chestnut Ridge, the visitor would be able to view rural landscapes at a distance. Private land along the southern and eastern boundaries does have the potential to impact

BEARTOWN WILDERNESS ADDITION B

wilderness attributes. The extreme western portion of the roadless area would be more difficult to manage as wilderness due to the proximity of cabins and activities on the surrounding private land. There are 671 acres of privately owned mineral rights within the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows features such as roads and property line boundaries. The northern boundary adjoins the existing Beartown Wilderness. The eastern boundary adjoins a portion of the Garden Mountain roadless area and large tracts of private land. The southern boundary generally follows FDR 222 and VA 625. An offset from these roads would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the roads (brush clearing, grading, culvert installation and cleaning, gravel placement, etc.). An offset of 300 feet from the centerline of the roads is recommended. The eastern, northwestern, and portions of the southern boundary, would be more difficult to manage as wilderness due to the proximity of activities on surrounding private land.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There is one developed recreation site within this roadless area. The Chestnut Mountain Trail Shelter is a maintained facility that receives a high level of use nearly year-round. The Appalachian National Scenic Trail attracts a high level of use from hikers. Hunting, dispersed camping, fishing, and illegal ATV use are the largest recreation attractions to the area. Burkes Garden, a popular tourist attraction, is located northeast of the roadless area. If this roadless area is designated a wilderness, FDR 631, a primary access point for hunters into the area, would be decommissioned.

#### WILDLIFE

The Beartown Wilderness Addition B roadless area provides habitat for a diversity of wildlife species. The featured species is 67 percent turkey and 33 percent bear. If this roadless area becomes a designated wilderness, active maintenance of the wildlife openings on Chestnut Ridge would be discontinued. The result would be a substantial reduction in habitat for early successional species, in addition to a loss in the scenic views of Burkes Garden as seen from the ridge. Maintenance of the two artificial wildlife waterholes would also cease.

#### WATER AVAILABILITY AND USE

The headwaters of several tributary drainages are located within the roadless area that flow into Lick Creek and Laurel Creek, both major streams. Several of these unnamed tributaries support wild trout. There are four special use permit authorizations for spring boxes and waterlines from Laurel Branch to cabins on private property just beyond the boundary of the roadless area. The effects of these special uses on Laurel Branch are not known; however, there appears to be no water storage needs in the area. It could be expected that these special use authorizations would continue if this area becomes designated wilderness. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 56 percent of the area, or 1,818 acres, is classified as suitable for timber production. In the past 20 years, no timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness

designation. The 1,818 acres of suitable lands within this roadless area represents approximately 0.6 percent of all lands suitable for timber production on the Jefferson National Forest. Private subsurface minerals ownership is held on 671 acres within this area. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of October 1999. The potential for energy minerals, primarily natural gas, is estimated to be low to moderate. This area was leased under a Federal oil and gas lease in the 1980's. No oil or gas wells were drilled and the Federal lease expired. The potential for other Federal leasable minerals, including metallic minerals, is estimated to be low. Use of the shale borrow pits adjacent to FDR 222 would no longer be used if this area is designated a wilderness, unless a boundary adjustment is made as recommended in Section 2.f.

#### CULTURAL RESOURCES

No project specific cultural resource surveys have occurred within the roadless area as of March 1998. However, one historic and one prehistoric site are known to exist. No documentation is currently available for these sites.

#### LAND USES

There are five authorized special uses within the area, which include four waterline/ springbox authorizations and one road use authorization to access a private inholding. All current authorizations would be expected to continue as long as the permittees comply with the terms of the authorizations. No new authorizations would likely be approved.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands over portions of the northern, eastern, and southern perimeters. Wilderness designation may limit options for containing fires on private and/or federal lands. The Beartown Wilderness Addition B roadless area is expected to be in the generally infested area for Gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 77 percent of the area is composed of the Dry Mesic Oak type and Dry and Dry-Mesic Oak-Pine forest types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**BEAVERDAM CREEK**

BEAVERDAM CREEK ID NUMBER: 04014

| Surface Ownership | Acres |
|---|---|
| Forest Service* | 6,263 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 6,263 |

## Overview

* Cherokee National Forest - 5,130 acres, Jefferson National Forest - 1,133 acres

### LOCATION AND VICINITY

Beaverdam Creek roadless area is located on the Cherokee National Forest, Watauga Ranger District, Sullivan and Johnson Counties, Tennessee and the Jefferson National Forest, Mount Rogers National Recreation Area, Washington County, Virginia. The area is generally bounded by private land to the west, Forest Development Road (FDR) 32 to the north, private land, utility lines, and Beaverdam Creek to the east, and drains (Dark Hollow) and (Rockhouse Run) to the west and south. The area is found within U.S.G.S. Tennessee - Virginia Quadrangles Shady Valley, Laurel Bloomery, and Damascus. FDR 32 provides major vehicle access to the north and Virginia Highway 716 and Tennessee Highway 133 to the east. There are three improved roads (FDR 60833 -. 15 mile, FDR 60851 - 2.69 mile, and FDR 60852 -. 09 mile) within the roadless area. There are also three trails found within the area, the Appalachian National Scenic Trail (FDT 1) for 5.8 miles, Backbone Rock Trail (FDT 53) for 2.4 miles, and Tennessee Trail (FDT 4561) for. 9 mile.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

This area lies in the Central Appalachian Forest-Meadow province of the Southern Appalachian Mountains. Landform consists of mountain peaks and ranges separated by intermountain basins. Beaverdam Creek is a mountain ridge (Holston Mountain) divided by a series of small, steep sideslope drains. Elevation ranges approximately from 2000' at Beaverdam Creek to 3808' at Haunted, a ridgetop benchmark along the Appalachian Trail. Soils are Dystrochrepts, Kanhapludults, and Hapluduts with mixed kaolinitic and micaeous mineralogy with mesic temperature and udic moisture regimes. Vegetation is composed of mainly broadleaf deciduous species (white and scarlet oaks) with mixed mesophytic species and yellow poplar at low elevations, with pitch pine on drier and disturbed sites, and chestnut oak and northern red oak at moderate elevations. This area has been further classified as being in the Southern Blue Ridge Mountains subsection of the Blue Ridge Mountains section ecological unit classification.

### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting and hiking the Appalachian National Scenic Trail. A timber sale was recently completed with 366 acres in the 0-10 year age class. There are also two wildlife openings being maintained, one near Haunted Hollow at approximately 3 acres in size and a quarter acre opening near Dark Hollow.

### APPEARANCE OF THE AREA AND SURROUNDING CHARACTERISTICS OF CONTIGUOUS AREAS

With the exception of the recent timber sale (366 acres), the two wildlife openings (3.25 acres), and 2.93 miles of improved road, the majority of the area has a natural appearance. Although most of the area was timbered in the past, few obvious signs remain and those are disappearing into forest growth. The surrounding land to the north and east contrasts dramatically with the area as roads are paved state highways; utility corridors adjoin the roadless boundary, and development is beginning to occur on private

land. Backbone Rock, a Forest Service developed recreation area, adjoins the roadless area to the east, on Tennessee Highway 133.

#### KEY ATTRACTIONS

Those acres identified on the Jefferson National Forest are part of the Mount Rogers National Recreation Area. The Appalachian National Scenic Trail bisects the roadless area literally in half as it traverses the crest of Holston Mountain.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Beaverdam Creek roadless area appears to be natural but there are signs of recent disturbance. There are 366 acres of 0-10 age classes (less than 6%) within this roadless area. There are two maintained wildlife opening present (3.25 acres). There are 2.93 miles of maintained improved road within the area and 9.1 miles of maintained trail.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

Beaverdam Creek Roadless area is 6,202 acres in size and is located entirely on National Forest land. Beaverdam Creek is a mountain ridge (Holston Mountain) divided by a series of steep sideslope drains. Elevation ranges from 2200' at the drains to 3800' along the ridge crest. A solitude core area of 3,036 acres exists in a center block that generally follows the roadless area boundary. The relationship of core acres of solitude to the roadless area is approximately 49 percent. There are three improved roads (2.93 total miles) located within the roadless area. There are three trails within the roadless area (9.1 miles). Visitor use for the most part is light with small group sizes. Visitors feel like that they are in an unconfined, natural area. Noise from the surrounding lands can be heard along the periphery (state highways, private land, Backbone Rock recreation area, etc.) of the roadless area. Noise impacts and the reduced feeling of solitude and isolation are also felt when the improved roads within the area are being used for Forest Service activities.

It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one will become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from the improved road and trails. Within the area, there are some vestiges of isolated, scattered pockets of forest primeval but there is a degree of evidence of human impact. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Beaverdam Creek roadless area does present a range of dispersed recreational activities of which are typically found on the Cherokee National Forest as a whole. Activities such as hiking, hunting, fishing, Appalachian Trail thru hiking, and primitive camping, are present in the area. d. Beaverdam Creek is in the Southern Blue Ridge Mountain subsection of the Blue Ridge Mountain ecosystem section (6,202 acres). This ecosystem subsection and section is represented by the following wildernesses on the Cherokee National Forest: Big Laurel Branch, Pond Mountain, and Unaka Mountain (17,757 acres).

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Beaverdam Creek roadless area contains a diversity of geologic features that are typical of the Southern Appalachian Mountains that draw people to the area to experience the scenic views.

BEAVERDAM CREEK

Geologic rock types of this area consist of the Erwin Formation (White, vitreous quartzite, massive, with interbeds of dark-green silty and sandy shale, minor siltstones and very fine sandstone); Hampton Formation (Dark greenish-gray, silty and sandy shale, micaceous shale; numerous layers of medium-grained, feldspathic, thinly bedded sandstone); Unicoi Formation (Sequence of gray feldspathic sandstone, arkose, conglomerate, graywacke, siltstone and shale; greenish amygdaloidal basalt flows) and Shady Dolomite(Light-gray, well-bedded dolomite with thin-to medium-bedded gray limestone; yellowish-brown residual clays with "jasperoid" diagnostic).

There are no designated Research Natural Areas or Experimental Forests with the roadless area. There are 76 acres of Table Mountain Pine, a unique vegetation community that may have the potential to contribute to scientific or educational value in the future. In addition, Fritzs Breathing (Lowes) Cave is on the periphery of its protection area (approximately one acre) within this roadless area. Carolina saxifrage (Saxifraga caroliniana), a sensitive plant species has been identified as occurring in the roadless area.

Approximately 35% of the area is in the Mixed Mesophytic ecological community type. Another 28% is estimated in the Dry-Mesic Oak type, 18% in the Dry and Xeric Oak type and the remaining in miscellaneous community types.

No possible old growth has been identified in this roadless area. Approximately 4,723 acres (92%) are in the late forest successional type. Another 208 acres have been identified in the mid-successional forest type.

Beaverdam Creek roadless area has approximately 35 acres classified as Scenic Attractiveness Class A - Distinctive. These acres were identified as foreground along major streams in the area.

#### SIZE, SHAPE, AND MANAGEABILITY

As described previously, the size and shape of Beaverdam Creek roadless area makes its preservation as potential wilderness practical. The boundary follows topographic features, property boundary lines, and human improvements such as roads and utility lines. Although surrounding lands contrast dramatically with the area, the effects are limited to the periphery along the boundary of the roadless area and as such, any activity that does occur would not dominate the user's wilderness experience. High ridges and distance are more likely to limit the sights and sounds of civilization than the actual boundaries. The private land near the western boundary does have the potential to impact wilderness attributes but the surrounding steep ridges and side drains will buffer the magnitude of the potential impacts.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

The boundary follows obvious human made features such as roads and property line boundaries as well as natural features such as ridges and creeks. An offset from the boundary roads such as FDR 32 would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, road alignment, etc.). An offset of approximately 300 feet from the centerline of existing roads is recommended. Along the east side of the roadless area, the boundary meanders back and forth between Highway 133, Beaverdam Creek and the private property line. An offset of 300 feet is recommended for Highway 133. The mean high water mark on the west bank of Beaverdam Creek is recommended for use as the roadless area boundary. Just north of the Backbone Rock recreation area, the boundary follows the property line and not Beaverdam Creek. Areas to be excluded in the roadless area include the Backbone Rock

recreation area and the Backbone Rock trailhead parking lot.



## Wilderness Availability

### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. There is one National Forest Recreation Survey Site (NFRS site 139.0 - 21 acres) that is located within the roadless area. This is a general occupancy site but there are no immediate plans to develop this site. Wilderness designation would prohibit development of this site. The Appalachian National Scenic Trail traverses through the area as do two other trails (see Overview).

Acres on the Jefferson National Forest are within the Mount Rogers National Recreation Area.

### WATER AVAILABILITY AND USE

Holston Mountain divides this roadless area into a northern portion with small, headwater streams draining northerly to the South Fork Holston River and a southern portion with small, headwater streams draining southerly to Beaverdam Creek. Beaverdam Creek is a tributary stream of the South Fork Holston River. There are no known water storage needs or any existing special use water permits. Water quality should remain at its current level whether or not the area is designated wilderness. Mitigation measures for ground-disturbing activities in non-wilderness areas should minimize adverse impacts on water quality. Ground disturbing activities in wilderness are held to a minimum.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations.

Approximately 40 percent or 2,499 acres of the Beaverdam Creek roadless area is classified as suitable for timber production. In the last 10 years, approximately 366 acres of timber have been harvested. Timber harvest and the associated production of wood products from this area would be precluded by wilderness designation. This amounts to less than 1 percent of the lands suitable for timber production on the Cherokee National Forest.

Hard rock mineral production is low and unlikely at the present time. All mineral rights are in federal ownership. No oil and gas leases have been issued within the roadless area as discovery for these natural resources are low and unlikely.

### CULTURAL RESOURCES

The Beaverdam Creek roadless area has been partially surveyed and contains seven identified cultural resource sites. These have been classified as Class II sites, which require additional evaluation to determine if they are eligible for listing in the National Register of Historic Places (pursuant to 36 CFR 60). It also contains an additional three sites that have been classified as Class III sites. All Class III sites are not eligible for listing in the National Register of Historic Places.

### LAND USES

No special use permits have been issued for lands in the area.

No private lands would be affected if the area were designated as wilderness.

BEAVERDAM CREEK

**MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)**

Present fire control techniques are not expected to be impacted substantially if the area became designated wilderness. Since 1985, only one wildfire totaling 60 acres has occurred within the area.

There are 1,522 acres of oak decline damaged stands and 1,002 acres of oak host type ranked as vulnerable. Without active management, the trend would be to see more vulnerable stands affected by oak decline and mortality rates to increase with time. However, the acres within the suitable land base (which relates to active management) are 375 acres of oak declined damaged stands and 278 acres of oak host type ranked as vulnerable.

The north end of the Cherokee National Forest is expected to be in the generally infested area for Gypsy moth in the next ten years. Mortality in already stressed stands can be severe (up to 25-30%) following a first defoliation. Oaks are preferred hosts and it can be expected that those acres analyzed for oak decline would be at increased risk of mortality following defoliation.

There are a total of 130 acres of southern yellow pine types greater than 70 years of age at a moderate to high risk of southern pine beetle attack. No additional acres will be at a moderate to high risk within the next ten years. However, the acres within the suitable land base are currently 54 acres at a moderate to high risk.

**Need**

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

BROAD RUN ID NUMBER: 14508 **BROAD RUN**

## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 10,916 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 10,916 |

### LOCATION, VICINITY, AND ACCESS

Broad Run roadless area is located on the Jefferson national Forest, New Castle Ranger District, Botetourt and Craig Counties, Virginia. The area is bounded by private land to the northwest and southeast, a powerline and Forest Development Road (FDR) 183 to the southwest, and VA 606 to the northeast. The area is found within portions of the U.S.G.S. Virginia Quadrangles New Castle, Oriskany, Daleville, and Catawba. Major vehicular access is provided by VA 606 in the northeast corner, FDR 183 in the southwest corner, and FDR 5026 and 5027 along the western end of the area.

There are four improved roads within the area. FDR 5012 enters the area from the northeast off of VA 606 and is open to a gate at 0.3 miles before it continues westward for an additional 2.34 miles. FDR 5012A is a 0.2 mile spur road off of FDR 5012. FDR 5027A enters the area from the west off of FDR 5027 and is 0.04 miles in length. This road has 0.11 miles of right-of-way across private land to access the roadless area. FDR 5061 enters the area from the east off of VA 666. FDR 5061 is open to a gate and parking lot at 0.9 miles. After the gate, the road becomes unimproved FDR 5061 and Forest Development Trail (FDT) 5011. Total improved road mileage is 3.78 miles.

There are two unimproved roads within the area: FDR 5061 - 1.40 miles, and FDR 50971 - 0.6 miles. FDR 50971 enters the area from the southeast off of FDR 183. This road is gated but is occasionally opened to allow group camping. Total unimproved road mileage is 2.0 miles.

Four Forest Development Trails (FDT) access the area, several of which provide loop trail opportunities. The Ferrier Trail (FDT 189) is 2.5 miles in length and runs from FDR 182 and ties into the Lick Branch Trail 9FDT 262). Lick Branch is 4.9 miles in length and begins at the terminus of FDR 5026 and ties into the Price-Broad Mountain Trail (FDT 334). Price-Broad Mountain Trail follows the mountain crest through the area for 4.4 miles. All three trails are designated for foot and horseback riding traffic and receive a low amount of use. The Lees Creek Trail (FDT 5011) is designated for horseback riding and traverses between FDR 5061 and 50971, a distance of 2.8 miles. This trail also receives a low amount of use.

There are several “old woods” roads in the area that being kept open by illegal ATV traffic, particularly along the northern end of the area near several private hunting camps.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone or shale with parallel drainages with broad limestone valleys. Included in this area are Lick, Broad Run, and Caldwell Mountains with a series of small, steep sideslope drainages. Elevation ranges from approximately 1240 feet at Rolands Run Branch in the northwest portion of the area to 2964 feet at a point along the crest of Broad Run Mountain.

Vegetation is mainly broadleaf deciduous species. Approximately 12 percent of the area has a site index of 70 or above indicating moderate to high productivity for tree growth.

BROAD RUN

These areas occur in colluvial drainages, toeslopes, or along alluvial floodplains of small to medium sized streams. Here yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 88 percent of the area has a site index of 60 or below, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak and yellow pine occur on ridgetops and exposed south and east midslope aspects, with yellow pine occurring on the driest sites.

Approximately 75 percent of the area is underlain by Silurian-aged sandstone, and 25 percent is underlain by Braillier and Martinsburg shale. Ridgetop and sideslope soils consist primarily of moderately deep, loamy-skeletal Typic Dystrochrepts (Dekalb and Berks series). Footslopes and benches are often Typic Fragiudults (Laidig series) or other more productive colluvial Hapludults. Drainages contain deep loamy-skeletal Typic-Hapludults and Dystrochrepts formed in colluvium from sandstone (Oriskany and Sherando series) or shale (Shelocta series).

#### CURRENT USE

The area is primarily used for dispersed recreation activities along the four developed trails, as well as hunting and illegal ATV use. Approximately 18 percent, or 1,931 acres, is classified suitable for timber production

within the area. There are approximately four acres of maintained wildlife clearings. The area receives training flyovers from US military aircraft. All minerals are owned by the U.S. A.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 3.78 miles of improved road, 2.0 miles of unimproved road, and 14.6 miles of maintained trail in the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads and trails. Many old access roads and logging roads still exist and are evident; however, lack of maintenance and use is allowing some of them to become overgrown and regain a more natural appearance. Other old roads are being kept open by frequent illegal ATV traffic, particularly in the northern end of the area.

Most of the area was cut over and frequently burned in the late 1800's and early 1900's. Approximately 84 percent of the area is in the 21-100 year old age class, 9 percent is in the 101 plus years age class, two percent is in the 11-20 year class, and one percent is in the 0-10 year age class.

There is an abandoned powerline running northwest to southeast in the middle of the area for a distance of 3.3 miles. A buried telephone line and gas line exist parallel to FDR 183 along the southwestern edge of the area. These utility lines access nearby private land that has several year-round homes on it.

#### KEY ATTRACTIONS

The area is very popular with hunters. There are several private hunting camps adjacent the northern boundary. No federally listed endangered, threatened or sensitive species are known to occur in the area.

## Wilderness Capability



### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within

the area and the area has somewhat been affected by outside forces in the recent past. Broad Run roadless area appears to be natural but there are signs of recent disturbance. There are 90 acres of 0-10 year age class and 262 acres of 11-20 year age class timber, and approximately four acres of maintained wildlife openings within the area. There are also 3.78 miles of improved road, 2.0 miles of unimproved road, and four maintained trails totaling 14.6 miles within the area.

### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Broad Run roadless area is 10,964 acres in size and is located entirely on National Forest land. Landform consists of the ridgetops of Lick Mountain, Broad Run Mountain, and Caldwell Mountain divided by a series of sideslope drainages. A number of larger drainages separate these ridges. These are Lick Branch, Rolands Run Branch, Stone Coal Creek and Lees Creek. Elevations range from 1,240 feet at Rolands Run Branch in the northwest section of the area to 2,964 feet at a point along the crest of Broad Run Mountain. A solitude core area of 4,088 acres exists in a center block area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The proportion of core acres of solitude to the roadless area is approximately 37 percent. There are four improved roads (3.78 miles) and two unimproved roads (2.0 miles), and four maintained trails (14.6 miles) located within the area. Visitor use, for the most part, is light with small group sizes. Visitors feel like they are in an unconfined, natural area. Noise from the surrounding lands can be heard around the periphery (state highways, private land, Camp Easter Seal, Town of New Castle, etc.) of the roadless area. Noise impacts and the reduced feeling of solitude and isolation are also felt when traffic occurs along the improved roads within the area and from noises associated from routine US military training flight flyovers.

It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from improved trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

The Broad Run roadless area does present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as hunting, hiking, and primitive camping are present in the area.

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Broad Run is in the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Shawvers Run, Barbours Creek, Peters Mountain, Mountain Lake, Kimberling Creek, and Beartown. Within the Southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Barbours Creek Wilderness is the closest existing wilderness to this roadless area and is located approximately 7.0 air miles to the west.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridge tops. Shale and limestone are the bedrock on the

BROAD RUN

lower slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area.

Approximately 46 percent of the area is in the Dry/Dry-Mesic Oak-Pine ecological community type, 35 percent is in the Dry Mesic Oak, and 16 percent is in the Xeric Pine/ Pine-Oak type. The Mixed and Western Mesophytic type comprises three percent of the area and the Conifer-Northern Hardwood type represents less than one percent of the area.

There are 277 acres of inventoried possible old growth in this roadless area. The ecological community types represented are: 121 acres Dry/Dry-Mesic Oak-Pine which represents 2.5 percent of the Forest's total, 71 acres Dry Mesic Oak, representing. 25 percent of the forest's total, 64 acres Xeric Pine/Pine-Oak which represents 7 percent of the Forest's total, and 21 acres of Conifer/Northern Hardwood, representing 4.2 percent of the forest's total. There are no suitable acres of possible old growth.

There are no known federally listed threatened, endangered, or sensitive species within this roadless area. However, there is a Central Appalachian Shale Barren terrestrial community within the area. These shale barrens support plant species like the Virginia white-haired leatherflower. The narrow-leaved Blue-curls (*Trichostema setaceum*) plant has been identified within the roadless area.

Approximately 82 percent of this area is classified as having High Scenic Integrity while nine percent is classified as having Unacceptably Low Scenic Integrity. There are 35 acres within this area classified as "A" Scenic Attractiveness.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area makes its preservation as potential wilderness practical. Most of the boundary follows topographic features such as property boundary lines and human improvements such as roads. Surrounding lands are mostly National Forest, except for private land to the north and southeast. Directly northeast of this roadless area is the Price Mountain roadless area. Only VA 606 separates the two areas. There is also a private inholding with houses located just south of this roadless area adjacent to FDR 183.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows human made features such as roads, powerlines, and property line boundaries, as well as natural features such as ridges and streams. An offset from boundary roads, such as VA 606, would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, paving, road alignment, etc.). An offset of approximately 300 feet from the centerline of existing roads would be recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hunting is the largest recreation attraction for this area followed by hiking and horseback riding on the trails. The northern end of the area receives illegal ATV and 4WD activity from nearby private hunting camps.

### WILDLIFE

The Broad Run roadless area provides habitat for diverse wildlife species. The featured species are 51 percent turkey, 48 percent deer, one percent bear, and less than one percent grouse. No threatened, endangered, or sensitive wildlife species are known to occur within this roadless area.

### WATER AVAILABILITY AND USE

Most of this roadless area drains into Craig Creek. The southeast quadrant drains into Catawba Creek. There are no known water storage needs or any existing special use water permit authorizations. Water quality should remain at its current level whether or not the area is designated wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 18 percent, or 1,931 acres, is classified as suitable for timber production. In the last 10 years, approximately 90 acres of timber has been harvested. Timber harvest and the associated production of wood products from this area would be precluded by wilderness designation. The 1,931 acres of suitable lands in this roadless area represent 18 percent of all lands suitable for timber production on the Jefferson National Forest. All minerals are owned by U.S.A. There are no federal oil or natural gas leases in the area.

### CULTURAL RESOURCES

As of March, 1998, 617 acres of this roadless area have been surveyed for cultural resources. There are three inventoried transient camps and a hunting station within this roadless area. These camps are believed to have been in use prior to 1,000 B.C. There are also two historic sites involving a 19th century mining complex and colliers pit, and one multi-component historic and prehistoric site featuring a prehistoric transient camp and historic colliers pit.

This area exhibits a moderate to high potential for additional prehistoric and historic resources.

### LAND USES

No special use permit authorizations have been issued for lands in this roadless area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Fire suppression would be primarily by hand tools. Use of motorized and mechanized transport and equipment such as ATV's, bulldozers, and chainsaws would be allowed only upon specific approval by the appropriate line officer. Thus, wildfires would likely attain larger sizes than under current management. Wilderness designation may limit options for containing fires. Gypsy moth infestations are in the vicinity of this roadless area right now. Mortality can be severe (up to 25-30 percent) and oaks are the preferred hosts. Approximately 81 percent of the area is composed of the Dry Mesic Oak and Dry/Dry Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other National Forest or private land.

Portions of this roadless area are occupied by near pure stands of table mountain pine and/or pitch pine forest types. These pine-dominated stands occur primarily on southeast to southwest facing ridges and slopes with dry, well-drained soils. Table mountain pine

BROAD RUN

has serotinous cones that usually require significant heat in the tree canopy from fire to open the cones, thus allowing for seed dispersal and regeneration. Other oak dominated forest types that contain a component of these pine species also occupy a large portion of this roadless area. If this area was designated wilderness, the use of management ignited prescribed fire to manipulate these fire dependent ecosystems for restoration and maintenance would likely not be allowed. This will result in further declines in acreage and the open structure of these forest types along with the flora and fauna these ecosystems support.

**Need**

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

BRUSH MOUNTAIN ROADLESS AREA ID NUMBER: 14108



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 5,920 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 5,920 |

### LOCATION, VICINITY, AND ACCESS

The Brush Mountain roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Montgomery and Craig Counties, Virginia. The area is situated on the north side of Brush Mountain, approximately 3.2 air miles north-northeast of Blacksburg, and is found within portions of U.S.G.S. Virginia Quadrangles Newport and McDonalds Mill. The area is approximately 10.6 miles in length and is generally bounded by Brush Mountain to the south, Craig Creek or private property to the north, and electric utility corridors to the west and east. Major vehicle access is provided by US 460 to VA 621 from the west and north and VA 778 and VA 806 to Forest Development Road (FDR) 188.1 from the west and south. FDR 188.1, an improved road, traverses the entire area and serves as the southern boundary of the area.

There are two improved roads within the area. FDR 10800 enters the area from VA 621 and runs 0.64 miles south into the area on the west side of Hazelnut Hollow. FDR 10800A, 0.1 miles in length, branches off of FDR 10800 and crosses over to the east side of Hazelnut Hollow. Total improved road mileage is 0.74 miles.

There are no unimproved roads or maintained forest development trails within the area. However, there are numerous old access and logging roads and informal trails throughout the area. Some have become overgrown and impassable to anything but foot traffic. Others are kept open by hikers and hunters.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Brush Mountain roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone and shale with parallel drainages interspersed with broad limestone and shale valleys. Included in this area are Brush Mountain and, outside the area to the north, Sinking Creek Mountain. Slopes vary from very steep on sideslopes to nearly flat along Craig Creek. Drainage density is high. The area contains the headwaters of many tributaries that feed into Craig Creek. Elevation ranges from approximately 1660 feet adjacent to Craig Creek, near Sugar Bottom Hollow, to 3011 feet at a point along the crest of Brush Mountain adjacent to FDR 188.1 and the headwaters of Betsy Boating Hollow.

The roadless area is forested by eastern deciduous and coniferous species. Approximately 2 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams, such as Craig Creek, where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, white pine, and red maple dominate the overstory. The remaining 98 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites. The area also contains several of Virginia's few remaining pure stands of table mountain pine. This species requires fire to reproduce and is becoming increasingly uncommon within its natural range due to fire exclusion.

BRUSH MOUNTAIN

### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting and primitive camping associated with hunting. FDR 188.1 is a popular access point to the area for hunters and other recreationists. Management of this road has historically been controversial among the Forest Service, residents of the Preston Forest subdivision located adjacent to VA 806, and hunter groups. An agreement was reached in January 1998 to leave the road open. In return, a local hunter group will regularly collect and dispose of trash that accumulates along the road. Approximately 12 percent, or 748 acres, of the area are classified as suitable for timber production. Inventory data indicate no privately owned, outstanding or reserved, mineral rights underlying Federal surface ownership.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 0.74 miles of improved road and some of the old access and logging roads and informal trails are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads and trails. Some roads and trails are becoming overgrown and regaining a more natural appearance.

Most of the area was logged and frequently burned in the late 1800's and early 1900's. Approximately 59 percent of the timber is in the 21-100 year old age class, 20 percent is in the 101 plus years class, and less than one percent is in the 0-20 year old class. The area has 324 acres of possible inventoried old growth.

Featured species for the area is 97 percent turkey and three percent gray squirrel. There are no wildlife openings, recently seeded roads, or other wildlife habitat improvements within this roadless area.

The northern portion of the area is bounded by a mix of National Forest and private land along Craig Creek valley on the southside of VA 621. Private land in this valley is a combination of forest land, woodlots, farms, and residences. Electric power transmission lines form the western and eastern boundaries of the area. The eastern electric power transmission line is the boundary between the Brush Mountain roadless area and Brush Mountain East roadless area. Land adjacent to the southern boundary is dominated by private ownership with several inclusions of National Forest land. The Preston Forest subdivision, a residential area, is located adjacent to the southwestern corner of the area off of VA 806.

VA 621 has recently been widened and paved by the Virginia Department of Transportation in order to accommodate increased traffic and development on private lands adjacent to this road.

FDR 188.1, on the edge of the roadless area, has consistently been an area littered with trash, as well as a popular party spot. However, a local hunter group agreed in January 1998 to regularly clean up the trash and monitor the situation.

Mountain Lake Wilderness is located approximately 5.25 air miles north of the roadless area.

### KEY ATTRACTIONS

Activities associated with hunting and 4-wheel driving along FDR 188.1 are key attractions to the area. Caldwell Fields is a popular primitive camping area located adjacent to Craig Creek, just outside the roadless area boundary to the north. Sweet pinesap (*Monotropsis odorata*) occurs within the area. This plant is listed as having a very

rare occurrence globally and its occurrence in Virginia is listed as rare to very rare. No other federally listed threatened, endangered, or sensitive species are known to occur within the area. Inventory data indicates two element occurrences of piratebush (*Buckleya distichophylla*) within this roadless area.

## Wilderness Capability

### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the Brush Mountain roadless area appears to be natural but there are signs of disturbance. The improved roads and some old access roads and informal trails are visually evident within the area. If this roadless area becomes wilderness, the improved roads would be in wilderness and removed from the Forest's transportation system. FDR 188.1 and the electric transmission lines, though outside the roadless area boundary, influence ecological processes around the periphery of the area. There are 13 acres of 0-10 year old age class timber within the area. The overall influence of human activities within the area is minimal, primarily due to the area's challenging topography. The influence of the wildland-urban interface continues to expand around the perimeter of the area. Traffic and development are increasing on adjacent private land.

### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Brush Mountain roadless area is 5,997 acres in size and is located entirely on National Forest land. The area is generally located on the northern sideslopes of Brush Mountain, between the crest of Brush Mountain and Craig Creek or private land to the north. The roadless area is approximately 10.6 miles in length from southwest to northeast and averages approximately 1.0 mile in width. Elevations range from approximately 1660 feet adjacent to Craig Creek to 3011 feet at a point along the crest of Brush Mountain. The area contains no solitude core area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. Visitor use of the area can be described as low to moderate in the northern portion of the area south of Craig Creek. This area receives most of its use during hunting season. Visitor use along the crest of Brush Mountain can be described as moderate to high, primarily during hunting season. The further one gets away from roads and the periphery of the area, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance. However, some areas may be impacted by noises and sights associated with traffic on US 460 at the western end of the area, other improved roads along the area's periphery, noises from the electric transmission lines, or activities from adjoining private land, which may reduce the feeling of solitude and isolation. Additionally, noises from a nearby Forest Service shooting range can be heard within the area on calm days and a portion of the area is within a flight path involving US military jets on low altitude flight training missions.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Brush Mountain roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, primitive camping, and hiking are present in the area.

BRUSH MOUNTAIN

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Brush Mountain roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (5,997 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by shale and sandstone. Sandstone is found on the upper slopes and ridgetops while shale is found on the lower slopes and in the valley.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area's large relief and highly dissected topography creates a wide range of ecological types from hot, dry windswept ridgetops to moist, protected coves near Craig Creek. There are several stands of table mountain pine within the area, which offer opportunities for scientific and educational purposes. This pine requires fire in its ecosystem to stimulate reproduction and perpetuate the species. The sensitive plant, sweet pinesap also requires fire disturbance to maintain and enhance its population.

The majority of the area, approximately 44 percent, is in the Dry/Dry-Mesic Oak-Pine ecological community type. The Dry Mesic Oak type represents about 32 percent of the area while the Xeric Pine/Pine-Oak type represents 23 percent of the area. The Conifer/ Northern Hardwood, and other minor ecological community types, represent less than one percent of the area.

There are 324 acres of inventoried possible old growth. The ecological community types represented are: 1 acre Conifer/Northern Hardwood (1 acre suitable) which represents 0.2 percent of the Forest's total, 235 acres Dry/Dry-Mesic Oak-Pine (0 acres suitable) which represents 4.9 percent of the Forest's total, 87 acres Dry Mesic Oak (33 acres suitable) which represents 0.3 percent of the Forest's total, and 1 acre Xeric Pine and Pine-Oak (0 acres suitable) which represents 0.1 percent of the Forest's total.

Approximately 88 percent of the area is classified as having high to very high existing scenic integrity.

The Mountain Lake Wilderness is located approximately 5.25 air miles north of the roadless area.

### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Brush Mountain roadless area makes its preservation as potential wilderness practical. Most of the boundary follows property lines, FDR 188.1, the south bank of Craig Creek, or electric utility corridors. The narrow, linear shape of the area would make administration of the area as wilderness somewhat of a challenge due to access. Although surrounding private lands contrast somewhat with the area, the effects are generally limited to the periphery along the boundary of the roadless area.

### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service boundary lines, FDR 188.1, the south bank of Craig Creek, and electric utility corridors delineate the entire area. An offset from FDR 188.1 and the utility corridors would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.) or utility corridor maintenance. An offset of 100 feet from the centerline of FDR 188.1 and the edge of electric utility corridors is

recommended.

## Availability for Wilderness

### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hunting, dispersed camping, hiking, and 4-wheel driving along FDR 188.1 are the largest recreation attractions to the area. Fishing in Craig Creek is also popular with anglers. The population centers of Blacksburg and Christiansburg are located approximately 20-25 minutes away from the southwest corner of the area. There would be no impacts to current legal recreation uses within this roadless area if the area is designated a wilderness.

### WILDLIFE

The Brush Mountain roadless area provides habitat for a diversity of wildlife species. Featured species of the area is 97 percent turkey and three percent gray squirrel. There are no wildlife habitat improvement projects within the area.

### WATER AVAILABILITY AND USE

The roadless area contains the headwaters of many tributaries that feed into Craig Creek, a popular fishery. Craig Creek is a cool water stream with a poor to fair macroinvertebrate monitoring score. There are no known water shortage needs or any existing special use water permits. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 12 percent of the area, or 748 acres, is classified as suitable for timber production. In the past 20 years, 26 acres of timber have been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 748 acres of suitable lands within this roadless area represents approximately 0.2 percent of all lands suitable for timber production on the Jefferson National Forest. Private subsurface minerals ownership is held on 144 acres within this area. No Federal oil and gas leases are in effect in this area as of October 1999. The potential for energy minerals, primarily natural gas, is estimated to be low to moderate. The area was leased under a Federal oil and gas lease in the 1980's. No oil or gas wells were drilled and the Federal lease expired. The potential for other leasable minerals, including metallic minerals, is estimated to be low.

### CULTURAL RESOURCES

Approximately 59 acres have been surveyed for cultural resources, as of March 1998, within the roadless area. No cultural resources have been identified. The remaining area exhibits a low to moderate potential for prehistoric and historic resources.

### LAND USES

No special use permit authorizations have been issued within this roadless area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated

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wilderness. Fire suppression would be primarily by hand tools. Use of motorized and/or mechanized equipment and transport such as ATV's, bulldozers, and chainsaws would be allowed only upon specific approval by the appropriate line officer. Thus, wildfires would likely attain larger sizes than under current management. The roadless area is bounded by a combination of National Forest and private lands to the north and south. A large housing subdivision, Preston Forest, adjoins the southwestern portion of the area. Wilderness designation may limit options for containing fires on private and/or federal lands. The Brush Mountain roadless area is expected to be in the generally infested area for gypsy moth in the next five to ten years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 76 percent of the area is composed of the Dry Mesic Oak and Dry/Dry-Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

Portions of this roadless area are occupied by near pure stands of table mountain pine and/or pitch pine forest types. These pine-dominated stands occur primarily on southeast to southwest facing ridges and slopes with dry, well-drained soils. Table

mountain pine has serotinous cones that usually require significant heat in the tree canopy from fire to open the cones, thus allowing for seed dispersal and regeneration. Other oak dominated forest types that contain a component of these pine species also occupy a large portion of this roadless area. If this area was designated wilderness, the use of management ignited prescribed fire to manipulate these fire dependent ecosystems for restoration and maintenance would likely not be allowed. This will result in further declines in acreage and the open structure of these forest types along with the flora and fauna these ecosystems support.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

(AUDIE MURPHY MONUMENT)

| Surface Ownership | Acres |
|---|---|
| Forest Service | 4,865 |
| Private | 30 |
| Park Service | 0 |
| TOTAL | 4,895 |

## Overview

### LOCATION, VICINITY, AND ACCESS

The Brush Mountain East roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Craig, Roanoke, and Montgomery Counties, Virginia. The area is situated on the north and south slopes of Brush Mountain and is found within portions of U.S.G.S. Virginia Quadrangles McDonalds Mill, Glenvar, and Looney. The area is generally bounded by private land to the north, east and south. An electric utility line corridor, to the west, separates this roadless area from the Brush Mountain roadless area. A short segment of another utility line corridor delineates a portion of the eastern boundary of the area near VA 620. Major vehicle access is provided by VA 621 from the west and north, VA 624 to Forest Development Road (FDR) 188.1 from the west and south and VA 620 from the east. FDR 188.1, an improved road, serves as a portion of the southwestern boundary of the area.

There is one improved road within the area. FDR 188.3 intersects with FDR 188.1 on the crest of Brush Mountain and runs east for 0.91 miles to where the road is gated just beyond the end of a private 32 acre inholding. A small parking lot is located on the west side of the gate. Total improved road mileage is 0.91 miles.

FDR 188.3 becomes an unimproved road, east of the gated area, and runs 0.77 miles further along the crest of Brush Mountain before it terminates. Total unimproved road mileage is 0.77 miles.

There is one Forest Development Trail (FDT) within the area. The Appalachian National Scenic Trail (FDT 1) traverses the area for approximately 7.5 miles. The trail enters the area from VA 621, climbs to the crest of Brush Mountain, and runs eastward before exiting the area at VA 620. A short, 300- foot long, side trail off the Appalachian National Scenic Trail, leads to the Audie Murphy Monument on Brush Mountain. There are numerous old access and logging roads throughout the area. Some have become overgrown and impassable to anything but foot traffic. Others are kept open by hikers and hunters. Total maintained trail mileage is 7.5 miles.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Brush Mountain East roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone and shale with parallel drainages interspersed with broad limestone and shale valleys. Included in this area are Brush Mountain and, outside the area to the north, Sinking Creek Mountain. Slopes vary from very steep on sideslopes to gentle along some of the drainages. Drainage density is high. The area contains the headwaters of many tributaries that feed into Craig Creek to the north and Trout Creek to the east and south. Elevation ranges from approximately 1520 feet adjacent to where the Appalachian National Scenic Trail crosses over Craig Creek to 3070 feet at a point along the crest of Brush Mountain.

The roadless area is forested by eastern deciduous and coniferous species. Approximately three percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or

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toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, white pine, and red maple dominate the overstory. The remaining 97 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites. The area also contains several of Virginia's few remaining pure stands of table mountain pine. This species requires fire to reproduce and is becoming increasingly uncommon within its natural range due to fire exclusion. A population of box huckleberry is located within the area. This species also requires fire to ensure its long term survival and vigor.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as hiking, hunting, and primitive camping. FDR 188.1 to FDR 188.3 is a popular access point to the area for hikers, hunters, and persons interested in visiting the Audie Murphy Monument. Approximately nine percent, or 439 acres, of the area are classified as suitable for timber production. Inventory data indicate that this area has 144 acres of outstanding privately owned mineral rights underlying Federal surface ownership.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 0.91 miles of improved road, 0.77 miles of unimproved road, 7.5 miles of the Appalachian National Scenic Trail, the Audie Murphy Monument, and some of the old access and logging roads are visually evident and influence ecological processes, as a minimum, in the vicinity of these facilities. Some old roads are becoming overgrown and regaining a more natural appearance.

Most of the area was cut over and frequently burned in the late 1800's and early 1900's. Approximately 86 percent of the timber is in the 21-100 year old age class, three percent is in the 101 plus years class, and less than one percent in the 11-20 year old class. The area has 15 acres of possible inventoried old growth.

Featured species for the area is turkey. There are two maintained wildlife openings, totaling approximately five acres, within the roadless area boundary.

The northern, eastern, and southern portions of the area are bounded primarily by private property boundaries, with inclusions of National Forest land or VA 621 and 620. Private land is generally a combination of forest land, woodlots, farms, and residences. An electric utility line corridor forms the western boundary of the area. This corridor also separates this roadless area from the Brush Mountain roadless area, to the west. A short section of another electric utility line corridor forms a portion of the eastern boundary of the area.

VA 621 was recently widened and paved by the Virginia Department of Transportation in order to accommodate increased traffic and development on private lands adjacent to this road.

Mountain Lake Wilderness is the nearest existing wilderness to the area and is located approximately 10.5 air miles northwest of the roadless area.

#### KEY ATTRACTIONS

Activities associated with hiking the Appalachian National Scenic Trail, hunting, and the Audie Murphy Monument are key attractions to the area. The 20 acre Brush Mountain

Special Biological Area is located along the crest of Brush Mountain. A population of piratebush is located in this area. The occurrence of piratebush, in Virginia, is listed as rare by the Virginia Division of Natural Heritage and is a Forest Service sensitive species. The area also contains a population of the locally rare species, box huckleberry, which is also listed by the Virginia Division of Natural Heritage as a very rare species in the state. There are no other known federally listed threatened, endangered, or sensitive species within the area.

## Wilderness Capability

### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is somewhat affected by outside forces. Much of the Brush Mountain East roadless area appears to be natural but there are signs of disturbance. The improved and unimproved roads, maintained trail, and numerous old access and logging roads within the area are readily evident. If this roadless area becomes wilderness, improved road FDR 188.3 would be in wilderness and closed to all motorized traffic except for that traffic needed by the private landowner to access his inholding. The unimproved portion of FDR 188.3 would be closed and removed from the Forest's transportation system. Some of the old access and logging roads have become overgrown and impassable, causing minimal impact on the area's natural ecological processes. Other old roads are keep open by hikers and hunters and are evident. FDR 188.1 and the electric utility corridors, though outside the roadless area boundary, influence ecological processes around the periphery of the area. A small granite monument that commemorates the location of where Audie Murphy died in an airplane crash is located several hundred feet off the Appalachian National Scenic Trail near the crest of Brush Mountain. There are no acres of 0-10 year old age class timber within the area. The overall influence of human activities to the area is minimal, primarily due to the area's challenging topography. The influence of the wildland-urban interface continues to expand around the perimeter of the area. Traffic and development are increasing on adjacent private land.

### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Brush Mountain East roadless area is 4,944 acres in size, of which 4,912 acres are located on National Forest land and 32 acres are under private ownership. The area is generally located on the northern and southern sideslopes of Brush Mountain west of the New Castle and New River Valley Ranger District boundary line along VA 620. Electric utility line corridors form the western and a portion of the eastern boundaries of the area. Private land, with small inclusions of National Forest land, borders the northern, eastern, and southern boundaries. Elevations range from approximately 1520 feet adjacent to Craig Creek to 3070 feet at a point along the crest of Brush Mountain. A solitude core area of 3,388 acres exists in the central and southern portions of the roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximately 69 percent. Visitor use of the area can be described as moderate to high in the spring and fall and low during summer and winter. Visitor use is concentrated along the Appalachian National Scenic Trail and FDR 188.3. The further one gets away from roads, trails, and the periphery of the area, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance. However, some areas may be impacted around the periphery of the area by noises associated with traffic on improved roads, noises from the electric utility corridors, or activities from adjoining private land, which may reduce the feeling of solitude and isolation.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive

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camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Brush Mountain East roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hiking, hunting, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Brush Mountain East roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (4,912 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by shale and sandstone. Sandstone is found on the upper slopes and ridgetops while shale is found on the lower slopes and in the valley.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area's large relief and highly dissected topography creates a wide range of ecological types from hot, dry windswept ridgetops to moist, protected coves near Craig Creek.

The Brush Mountain Special Biological Area provides opportunities for scientific study and educational purposes related to piratebush (sensitive), box huckleberry (locally rare), and table mountain pine. Both box huckleberry and table mountain pine require fire in their ecosystem to perpetuate the species. One occurrence of piratebush has been found in this roadless area. The area also contains the Central Appalachian Shale Barrens, which support plant species like the Virginia white-haired leatherflower.

The majority of the area, approximately 88 percent, is in the Dry/Dry-Mesic Oak-Pine ecological community type. The Dry Mesic Oak type represents about nine percent of the area while the Xeric Pine/Pine-Oak type represents three percent of the area. The Conifer/Northern Hardwood, and other minor ecological community types, represent less than one percent of the area.

There are 15 acres of inventoried possible old growth. The ecological community type represented is: 15 acres Dry/Dry-Mesic Oak-Pine (0 acres suitable), which represents 0.3 percent of the Forest's total.

Approximately 89 percent of the area is classified as having high existing scenic integrity.

Mountain Lake Wilderness is the nearest existing wilderness to the area and is located approximately 10.5 air miles northwest of the roadless area.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Brush Mountain East roadless area makes its preservation as potential wilderness practical. Most of the boundary follows property lines, FDR 188.1, VA 621 and 620, or electric utility corridors. FDR 188.3 accesses the private inholding on the

south side of Brush Mountain, and is also a popular access point for hikers, hunters, and those wishing to visit the Audie Murphy Monument. Closing this road to all traffic, except to the owners of the inholding, would likely be controversial. Although surrounding private lands contrast somewhat with the area, the effects are generally limited to the periphery along the boundary and in the vicinity of FDR 188.3 of the roadless area. There are 144 acres of privately owned outstanding mineral rights underlying Federal surface ownership within the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service boundary lines, FDR 188.1, VA 621 and 620, and electric utility corridors delineate the entire area. An offset from FDR 188.1, VA 621 and 620, and the utility corridors would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the roads (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.) or utility line corridor maintenance. An offset of 100 feet from the centerline of FDR 188.1 and the edge of utility corridors is recommended while a 300- foot offset from the centerline of State roads is recommended. A possible management solution concerning established access to the area via FDR 188.3 would be to eliminate the area south of this road up to the gate just beyond the private inholding, then running an area boundary line south along the eastern end of the inholding to the National Forest boundary. This would reduce the roadless area size from 4,912 acres to approximately 4,772 acres.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hiking, hunting, and primitive camping are key recreation activities within the area. The Appalachian National Scenic Trail traverses about 7.5 miles of the area. The Audie Murphy Monument attracts a number of visitors each year to the site where Murphy died in an airplane crash. Murphy was a well known decorated soldier from World War II that went on to become a popular movie star. The population center of Blacksburg is approximately 30 minutes away from the area. No impacts to current recreation uses would be expected to occur should this area be designated as wilderness.

#### WILDLIFE

The Brush Mountain roadless area provides habitat for a diversity of wildlife species. Featured species of the area is turkey. If this roadless area is designated as wilderness, maintenance of the wildlife openings would be discontinued.

#### WATER AVAILABILITY AND USE

The roadless area contains the headwaters of many tributaries that feed into Craig Creek to the north and Trout Creek to the east and south. There are no known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately nine percent of the area, or 439 acres, is classified as suitable for timber production. In the past 20 years, 11 acres of timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 439 acres of suitable lands within this roadless area represents approximately 0.1 percent of all lands suitable for timber production on the Jefferson

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National Forest. No Federal oil and gas leases are in effect in this area as of October 1999. The potential for energy minerals, primarily natural gas, is estimated to be low to moderate. The area was leased under a Federal oil and gas lease in the 1980's. No oil or gas wells were drilled and the Federal lease expired. The potential for other leasable minerals, including metallic minerals, is estimated to be low.

#### CULTURAL RESOURCES

Approximately 74 acres have been surveyed for cultural resources, as of March 1998, within the roadless area. No cultural resources have been identified. The remaining area exhibits a moderate to high potential for prehistoric and historic resources.

#### LAND USES

No special use permit authorizations have been issued within this roadless area. A 32-acre private inholding is located on the south side of FDR 188.3 in the southwestern

portion of the area.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded primarily by private lands to the north, east, and south. Wilderness designation may limit options for containing fires on private and/or federal lands. The Brush Mountain East roadless area is expected to be in the generally infested area for gypsy moth in the next five to ten years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 97 percent of the area is composed of the Dry Mesic Oak and Dry/Dry-Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

Portions of this roadless area are occupied by near pure stands of table mountain pine and/or pitch pine forest types. These pine-dominated stands occur primarily on southeast to southwest facing ridges and slopes with dry, well-drained soils. Table mountain pine has serotinous cones that usually require significant heat in the tree canopy from fire to open the cones, thus allowing for seed dispersal and regeneration. Other oak dominated forest types that contain a component of these pine species also occupy a large portion of this roadless area. If this area was designated wilderness, the use of management ignited prescribed fire to manipulate these fire dependent ecosystems for restoration and maintenance would likely not be allowed. This will result in further declines in acreage and the open structure of these forest types along with the flora and fauna these ecosystems support.

#### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

BRUSHY MOUNTAIN ROADLESS AREA ID NUMBER: 14603



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 4,118 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 4,118 |

### LOCATION, VICINITY, AND ACCESS

The Brushy Mountain roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Bland County, Virginia. The area is located east of Interstate 77 and north of VA 42, approximately 2.5 miles northeast of the Town of Bland. The area is found within portions of the U.S.G.S. Virginia Quadrangles Rocky Gap and Bland. The area is bounded by VA 612, private and National Forest land to the north, and mostly private land, with inclusions of National Forest, to the east, south, and west. Major vehicle access is provided by VA 612 along the northern boundary. VA 42 comes no closer than approximately 0.3 miles away from the southern end of the area.

The western boundary was adjusted slightly with the AEP 765 kV Transmission Line decision (12/20/02). The portion of the western boundary adjacent to I-77 was moved eastward to the edge of the powerline corridor, resulting in a reduction of 47 acres to the roadless area.

There are no improved or unimproved roads within the area.

The Appalachian National Scenic Trail is the only Forest Development Trail (FDT 1) found within the roadless area. Approximately 6.5 miles of this trail traverse the area in an east-west direction, generally following the crest of Brushy Mountain. Direct access to the trail is provided by a small graveled parking lot adjacent to VA 612 just beyond the northwest boundary of the roadless area. A short trail spur, approximately 0.4 miles in length, leads from the Appalachian National Scenic Trail to the Helvey's Mill Trail Shelter on the western end of the area. Total maintained trail mileage is 6.9 miles.

Approximately 2.59 miles of uninventoried roads, primarily old access and logging roads, still exist within the area. Most have become overgrown and impassable to anything but foot traffic.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Brushy Mountain roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone and shale with parallel drainages interspersed with siltstone and shale valleys. Included in this area is Brushy Mountain. Slopes vary from very steep on sideslopes to gentle along Kimberling Creek along the northern boundary. Drainage density is high on the slopes of Brushy Mountain and the drainages are narrow and deep with steep sideslopes. The area contains the headwaters for a multitude of tributaries that feed Kimberling Creek to the north and Helvey's Mill Creek to the south. Elevation ranges from approximately 2280 feet along Kimberling Creek to 3250 feet at a point along the crest of Brushy Mountain.

Vegetation is mainly broadleaf deciduous species with some white and yellow pine. Approximately 20 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or

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toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, white pine, and red maple dominate the overstory. The remaining 80 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting and hiking. Dispersed camping is popular adjacent to VA 612, primarily during the fall hunting seasons. Hiking use is concentrated along the Appalachian National Scenic Trail, which receives a high amount of use. Approximately 10 percent, or 410 acres, of the area is classified as suitable for timber production. Inventory data indicate no privately owned, outstanding or reserved, mineral rights underlying Federal ownership within this roadless area.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 6.9 miles of maintained trails and a trail shelter/privy complex are visually evident and influence ecological processes, as a minimum, in the vicinity of these developments. The Helvey's Mill Trail Shelter, and associated privy, are located on the western end of the roadless area, about 0.4 miles off the Appalachian National Scenic Trail. The 2.59 miles of uninventoried old access and logging roads still exist and are evident; however, lack of maintenance is allowing most of them to become overgrown and regain a more natural appearance. As a result, illegal ATV traffic is relatively low in this area.

Most of the area was cut over and frequently burned in the late 1800's and early 1900's. Approximately 71 percent of the timber is in the 21-100 year old class. There are no acres of timber in the 0-10 year age class. The area has 430 acres of possible inventoried old growth.

Featured species for the area is 99 percent turkey and one percent deer. No wildlife openings, recently seeded roads, or other wildlife habitat improvements exist within the area.

The area is essentially bounded on three sides by private land. This land is comprised of fairly large tracts of forest land, small woodlots, residences, and structures and activities related to farming. A series of private hunting cabins are located just outside the northwestern boundary of the area. A large tract of National Forest land is located north of VA 612.

The northwestern corner of the roadless area boundary is adjacent to the planned AEP 765 kV powerline corridor. One new large tower will be visible from within the roadless area and may create negative visual impacts, particularly to AT users. Sights and sounds from the line and from occasional maintenance activities will be apparent to visitors in that portion of the area.

Unsightly conditions occur sometimes along VA 612 due to illegal trash dumping.

#### KEY ATTRACTIONS

The Appalachian National Scenic Trail is a key attraction of the area. The area is also popular with hunters, particularly along the northern and western perimeters of the area. There are no known Federally threatened, endangered, or sensitive species in the area.

## Wilderness Capability



### NATURAL INTEGRITY AND APPEARANCE

Much of the Brushy Mountain roadless area appears to be natural but there are signs of disturbance. The central, southern, and eastern sections of the area exhibit little disturbance to the casual observer. The 6.9 miles of maintained trail, and associated trail shelter and privy, are visually evident. The Interstate 77 corridor comes within approximately 200 feet of the northwest boundary of the area. Most of the old, abandoned roads in this roadless area have become overgrown and impassable by motorized means, causing minimal effect on the area's natural ecological processes. The northern slopes of Brushy Mountain offer some challenging topography due to steep slopes and highly dissected drainages. Illegal trash dumping is evident along VA 612, which makes up a portion of the northern boundary of the roadless area.

### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Brushy Mountain roadless area is 4,183 acres in size and is located entirely on National Forest land. Brushy Mountain generally bisects the area from east to west with the Appalachian National Scenic Trail traversing its crest. A solitude core area of 2,783 acres exists in the central and southern portions of the roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless area. The ratio of core acres of solitude to the roadless area is approximately 66 percent. Visitor use along the Appalachian National Scenic Trail is generally high in the spring and fall seasons. Areas adjacent to VA 612 and the northwest section of the area receive moderate use during hunting season. Visitors to the central and southern portions of the area feel that they are in an unconfined, natural area since the area appears to be relatively free from disturbance. However, some areas are impacted around the periphery of the area by noises associated with traffic on Interstate 77, the AEP 765 kV powerline, VA 612, VA 42, or from activities on adjacent private land, which may reduce the feeling of solitude and isolation.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Brushy Mountain roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, hiking, and primitive camping are present in the area.

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Brushy Mountain roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (4,184 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this are dominated by sandstone, siltstone, and shale. Sandstone is found on the upper slopes and ridgetops. Siltstone and shale are found on the lower

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slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The Appalachian National Scenic Trail traverses the central portion of the roadless area and presents vistas of the surrounding area from several high points along Brushy Mountain.

Much of the area is comprised of ridgetop and midslope ecological community types. The Dry Mesic Oak type comprises approximately 45 percent of the area. The Dry and Dry-Mesic Oak-Pine type and Xeric Pine and Pine-Oak community types represent 43 and 10 percent of the area, respectively. The remainder of the area is comprised of the Mixed and Western Mesophytic and Conifer-Northern Hardwood community types.

There are 430 acres of possible inventoried old growth. The ecological community types represented are: 77 acres Dry and Dry-Mesic Oak-Pine (7 acres suitable) which represents 1.5 percent of the Forest's total; 302 acres Dry Mesic Oak (49 acres suitable) which represents 1.1 percent of the Forest's total, 19 acres Mixed and Western Mesophytic (19 acres suitable) which represents 0.5 percent of the Forest's total, and 32 acres Xeric Pine and Pine-Oak (0 acres suitable) which represents 3.5 percent of the Forest's total.

Approximately 98 percent of the area is classified as having high existing scenic integrity.

The Kimberling Creek Wilderness lies approximately 500 feet, at its closest point, just north of the Brushy Mountain roadless area.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Brushy Mountain roadless area makes its preservation as potential wilderness practical. Most of the boundary follows property lines or VA 612. Boundaries would need to be established on the ground where the boundary joins other National Forest lands. Although surrounding private lands contrast somewhat with the area, the effects are generally limited to the periphery along the boundary of the roadless area. There are no privately owned mineral rights within the area.

The northwestern corner of the roadless area boundary is adjacent to the planned AEP 765 kV powerline corridor. One new large tower will be visible from within the roadless area. Sights and sounds from the line and from occasional maintenance activities will be apparent to visitors in that portion of the area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service boundary lines and VA 612 delineate most of the roadless area boundary. An offset from VA 612 would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.) and the adjacent dispersed camping areas that are used during hunting season. An offset of 100 feet from the centerline of the road is recommended. This recommendation is the same as that established for the existing Kimberling Creek Wilderness that also shares VA 612 as a boundary. An offset of 300 from the AEP 765 kV powerline right-of-way is recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There is one developed recreation site within the roadless area, the Helvey's Mill Trail Shelter facility. Maintenance of this facility is expected to continue regardless of the future designation of the Brushy Mountain roadless area. The Appalachian National

Scenic Trail attracts a high level of use from hikers. Hiking, hunting, and dispersed camping are the largest recreation attractions to the area. Interstate 77 provides relatively easy access to the trailhead parking lot located adjacent to VA 612, just beyond the northwest corner of the roadless area. No impacts to current recreation uses would be expected should this area be designated a wilderness.

### WILDLIFE

The Brushy Mountain roadless area provides habitat for a diversity of wildlife species. Featured species of the area are 99 percent turkey and one percent deer. There are no known Federally threatened, endangered, or sensitive species within this roadless area. Kimberling Creek has insufficient flow to support a sport fishery.

### WATER AVAILABILITY AND USE

The roadless area encompasses the headwaters for a multitude of tributaries that feed Kimberling Creek and Helvey's Mill. There are no known water storage needs or any existing special use water permits. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 10 percent of the area, or 410 acres, is classified as suitable for timber production. In the past 20 years, 27 acres of timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 410 acres of suitable lands within this roadless area represents 0.13 percent of all lands suitable for timber production on the Jefferson National Forest. Private subsurface minerals ownership is held on 40 acres within this area. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of October 1999. The potential for energy minerals, primarily natural gas and coal, is estimated to be low to moderate. This area was leased under a Federal oil and gas lease in the 1980's. No oil or gas wells were drilled and the Federal lease expired. The potential for other Federal leasable minerals, including metallic minerals, is estimated to be low.

### CULTURAL RESOURCES

Approximately 167 acres have been surveyed for cultural resources within the roadless area, as of March 1998, and no historical or prehistoric sites have been identified. However, the area exhibits moderate potential for prehistoric and historic resources.

### LAND USES

No special use permit authorizations have been issued in this roadless area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands on the east, south, and west perimeters. Wilderness designation may limit options for containing fires on private and/or federal lands. The Brushy Mountain roadless area is expected to be in the generally infested area for gypsy moth in the next ten to twenty years, dependent upon

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the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 88 percent of the area is composed of the Dry Mesic Oak and Dry and Dry-Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

Portions of this roadless area are occupied by near pure stands of table mountain pine and/or pitch pine forest types. These pine-dominated stands occur primarily on southeast to southwest facing ridges and slopes with dry, well-drained soils. Table mountain pine has serotinous cones that usually require significant heat in the tree canopy from fire to open the cones, thus allowing for seed dispersal and regeneration. Other oak dominated forest types that contain a component of these pine species also occupy a large portion of this roadless area. If this area was designated wilderness, the use of management ignited prescribed fire to manipulate these fire dependent ecosystems for restoration and maintenance would likely not be allowed. This will result in further declines in acreage and the open structure of these forest types along with the flora and fauna these ecosystems support.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

GARDEN MOUNTAIN ROADLESS AREA ID NUMBER: 14605



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 3,636 |
| Private | |
| Park Service* | 326 |
| TOTAL | 3,962 |

* These acres were purchased by the National Park Service for the benefit of the Appalachian National Scenic Trail and are managed by the Forest Service under a Memorandum of Understanding.

### LOCATION, VICINITY, AND ACCESS

The Garden Mountain roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Bland and Tazewell Counties, Virginia. The area is located west of Interstate 77 and north of VA 42 and is found within portions of the U.S.G.S. Virginia Quadrangles Garden Mountain and Hutchinson Rock. The area is generally bounded by private land to the north and south, Beartown Wilderness Addition B roadless area and private land to the west, and VA 623 and Hunting Camp/Little Wolf Creek roadless area to the east. Major vehicle access is provided by VA 623 from the east, VA 727 from the north, and VA 625 from the south and west.

There is one improved Forest Development Road (FDR) within the roadless area. FDR 61191, a gated road, enters the area from State Route 623 on the eastern border of the roadless area and runs 0.5 miles to the west. Another improved road, without a Forest Service identifier, leads from Walker Gap to access a portion of private property located between the Garden Mountain roadless area and Beartown Wilderness Addition B roadless area west of Walker Gap. This private land access road is a reserved right-of-way easement and is 0.33 miles in length. The road is tank trapped and gated as it heads west toward Chestnut Knob away from the private property. Total improved road mileage is 0.83 miles.

There are a few old access and logging roads left within the area that remain passable. Additionally, there is a short road segment leading south-southeast from Walker Gap that accesses a dwelling and an 80-acre tract that were federally acquired in 1997. The access road is gated and, as of March 1998, no decision has been made on the management of the road.

There are no unimproved roads within the area.

There are two Forest Development Trails (FDT) found within the roadless area; the Appalachian National Scenic Trail (FDT 1) for approximately 5.5 miles and the Lick Creek Trail (FDT 6522) for 2.5 miles. The Lick Creek Trail breaks off from FDR 61191 and follows an old railroad logging grade. This trail is becoming overgrown and is designated for foot travel only. Total maintained trail mileage is 8.0 miles.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Garden Mountain roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone and shale with parallel drainages interspersed with shale valleys. Included in this area are Garden and Brushy Mountains. Slopes vary from very steep on sideslopes to nearly flat in the larger drainages. Drainage density is high on the slopes of Brushy Mountain and on the lower slopes of Garden Mountain. Drainages are narrow and deep with steep sideslopes in these locations. Drainage density is far lower on the upper slopes of Garden Mountain with broader, shallower drainages. Lick Creek is the only major drainage within the area.

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Elevation ranges from approximately 2500 feet along Lick Creek to 4080 feet at a point along the Appalachian National Scenic Trail on the crest of Garden Mountain.

Vegetation is mainly broadleaf deciduous species with some yellow pine. Approximately 33 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 67 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting and hiking. Dispersed camping is popular adjacent to VA 623, primarily during the fall hunting seasons. The Appalachian National Scenic Trail receives a high amount of use while the Lick Creek Trail receives low use. Associated with the Appalachian National Scenic Trail are two trailhead parking lots located within the roadless area boundary. One lot is located on the west side of VA 623 at the Bland/Tazewell County line and the other is located in Walker Gap off of VA 727. Approximately 36 percent, or 1,407 acres, of the area are classified as suitable for timber production. There are 40 acres of privately owned (outstanding or reserved) mineral rights underlying Federal surface ownership.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 0.83 miles of improved roads, the recently acquired access road, and 8.0 miles of maintained trail are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads and trails. Old access and logging roads still exist and are evident; however, lack of maintenance is allowing some of them to become overgrown and regain a more natural appearance. Other old roads are kept open by illegal ATV traffic, primarily along the western end of the area.

Most of the area was cut over and frequently burned in the late 1800's and early 1900's. Approximately 66 percent of the timber in the area is in the 21-100 year old class. The area has 839 acres of possible inventoried old growth.

Featured species for the area is turkey. No wildlife openings, recently seeded roads, or other habitat improvements exist in the area.

There is an old homesite to the west of Walker Gap with the remnants of a house foundation and spring box. This homesite is becoming overgrown and is blending in with the surrounding landscape. The spring box is identified in Appalachian Trail Conference publications as a water source for hikers. An old road leading from the homesite to the Chestnut Knob Trail Shelter in the Beartown Wilderness Addition B roadless area is tank trapped and gated, but remains passable and evident due to illegal ATV traffic.

An 80-acre tract was Federally acquired in 1997 within the roadless area boundary on the south side of Walker Gap. Several pastures, an improved cabin with outbuildings, and access road are located within the acquisition area. All improvements are evident.

Unsightly conditions periodically occur along VA 623 and at the associated trailhead parking lot due to illegal trash dumping.

The area is essentially bounded by private lands to the north and south. To the north, Burkes Garden offers a pastoral landscape made up of farms, pastures, woodlots, and residential and outbuilding structures. Private land to the south is rugged woodland interspersed with farms and pastures. VA 623, a gravelled road, and the Hunting Camp/ Little Wolf Creek roadless area bound the area to the east. A tract of private land and the Beartown Wilderness Addition B roadless area adjoin the west boundary.

#### KEY ATTRACTIONS

The Appalachian National Scenic Trail is a key attraction of the area and offers good views of Burkes Garden located on the north side of Garden Mountain. The area is also popular with big and small game hunters. Lick Creek is a wild trout stream that attracts some anglers. Beaver activity along the creek has created numerous ponds and marshes providing a diversity of habitat. A population of the Forest Service sensitive fish species, Tennessee dace, is located in Lick Creek. No other Federally threatened, endangered, or sensitive species are known to exist in the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Most of the Garden Mountain roadless area appears to be natural but there are signs of disturbance. There are 0.83 miles of improved road, 8.0 miles of maintained trail, and a recently acquired access road. The improvements located on the recently acquired tract of land on the south side of Walker Gap are evident. Improvements include a cabin with outbuildings, access road, and several small pastures. Illegal trash dumping is evident along VA 623, which makes up the eastern boundary of this roadless area. Some illegal ATV traffic occurs along the western boundary.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Garden Mountain roadless area is 3,962 acres in size of which 3,636 acres are within the proclaimed boundary of the Jefferson National Forest and 326 acres are outside the proclamation boundary, purchased by the National Park Service for the benefit of the Appalachian National Scenic Trail. Elevations range from approximately 2500 feet along Lick Creek to 4080 feet at a point along the Appalachian National Scenic Trail on the crest of Garden Mountain. A solitude core area of 2,284 acres exists in the central portion of the roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximately 67 percent, of which 233 acres are Semi-Primitive Motorized and 2,051 acres are Semi-Primitive Non-Motorized. There are two improved roads, two maintained trails, two trailhead parking lots, and a recently acquired access road within the area. Visitor use is high along the northern boundary of the roadless area due to the presence and accessibility of the Appalachian National Scenic Trail. Visitor use away from the Appalachian National Scenic Trail is low except during hunting season when use is moderate to high. Visitors feel that they are in an unconfined, natural area. Areas along the southern and eastern boundaries of the roadless area, as well as near Walker Gap, may be impacted by noises from improved roads and adjacent private land, which may reduce the feeling of solitude and isolation.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from improved roads and trails. The features of the area require the visitor to use a degree of outdoor skills to

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traverse the area.

Garden Mountain roadless area presents a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, hiking, and primitive camping are present in the area.

**SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)**

Garden Mountain roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (3,962 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridgetops while shale is found in the valleys and lower slopes. This roadless area lies on the outer flank of an unusual geologic feature: Burkes Garden, a dome shaped geologic structure. Over geologic time, the top of the dome has been breached (eroded) such that only the steep sides of the original arch of rocks are present today. The valley floor within Burkes Garden is composed of older limestone rocks, which were once deep within the core of the dome but are now exposed at the surface. The Appalachian National Scenic Trail follows the rim on the southern part of Burkes Garden along the north edge of this roadless area, and offers a view across the great bowl of Burkes Garden. Burkes Garden is a classic, textbook geologic feature.

Examples of Arthrophycus, the remains of ancient worm burrows or feeding trails, can be observed on some of the surfaces of the gray sandstones along the Appalachian Trail. They look like long, finger shaped branches that occur on the flat bedding surfaces of the rock.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area contains a pure stand of table mountain pine, a unique vegetation community that has the potential to contribute to scientific or educational value in the future. This community type requires fire to reproduce. The Appalachian National Scenic Trail traverses the northern boundary of the roadless area and the pastoral valley of Burkes Garden is located to the north of the area.

Approximately 68 percent of the area is in the Dry Mesic Oak ecological community type. Another 16 percent is in the Mixed and Western Mesophytic type, nine percent in the Dry and Dry-Mesic Oak-Pine type, six percent in the Xeric Pine and Pine-Oak, and the remaining in miscellaneous types.

There are 839 acres of inventoried possible old growth. The ecological community types represented are: 6 acres Dry and Dry-Mesic Oak-Pine (0 acres suitable) which represents 0.1 percent of the Forest's total, 755 acres Dry Mesic Oak (301 acres suitable) which represents 2.7 percent of the Forest's total, 63 acres Mixed and Western Mesophytic (63 acres suitable) which represents 1.7 percent of the Forest's total, and 15 acres Xeric Pine and Pine-Oak (0 acres suitable) which represents 1.6 percent of the Forest's total.

The Tennessee dace (sensitive) is known to occur in Lick Creek. There are no other

known threatened, endangered, or sensitive species in the area.

Approximately 93 percent of the area is classified as having high existing scenic integrity.

The Garden Mountain roadless area is bounded on the west by the Beartown Wilderness Addition B roadless area and VA 623 and the Hunting Camp/Little Wolf Creek roadless area to the east.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Garden Mountain roadless area makes its preservation as potential wilderness practical. Most of the boundary follows property lines or improved roads. Although surrounding private lands contrast dramatically with the area, the effects are limited to the periphery along the boundary of the roadless area, with the exception of the immediate vicinity around Walker Gap and, as such, any activity that does occur would not dominate the user's backcountry experience. The private land access road to the west of Walker Gap and the private cabins and outbuildings south of Walker Gap may dominate the user's backcountry experience in this portion of the roadless area. The private land along the southern boundary does have the potential to impact wilderness attributes but the surrounding steep ridges and side drainages will buffer the magnitude of the potential impacts. There are 40 acres of privately owned mineral rights within this roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service boundary lines delineate most of the roadless area boundary. The eastern boundary follows VA 623. An offset from this road would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, etc.). A minimum offset of 300 feet from the centerline of the road is recommended. Due to the impacts of the trailhead parking lot and private access roads in the Walker Gap area, it is recommended that an offset of 300 feet from the Walker Gap road be implemented. This would result in eliminating a small area in the extreme northwestern corner of the area from the Garden Mountain roadless area.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. The Appalachian National Scenic Trail attracts a high level of use from hikers and hunters. Dispersed camping is popular along the Appalachian National Scenic Trail, in the Walker Gap area, and alongside VA 623, particularly during hunting season. Hunting is very popular within the area, principally in areas adjacent to VA 623 and Walker Gap. There are two trailhead parking lots along the perimeter of this roadless area; one is located on the west side of VA 623 at the Bland/Tazewell County line and the other is located in Walker Gap. Burkes Garden, a popular tourist attraction, is located to the north of the roadless area. No impacts to current recreation uses would be expected should this area be designated a wilderness.

#### WILDLIFE

The Garden Mountain roadless area provides habitat for a diversity of wildlife species. Active beaver activity along Lick Creek has created a diversity of wildlife and habitat due to the creation of ponds and small wetlands. Turkey is the featured species within the roadless area. Lick Creek, a wild trout stream in its headwaters, supports a population of the Federally sensitive Tennessee dace.

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### WATER AVAILABILITY AND USE

The roadless area encompasses the headwaters of Lick Creek and most of the roadless area drains into the North Fork Holston River. There are no known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated a wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 36 percent of the area, or 1,407 acres, is classified as suitable for timber production. In the past 20 years, no timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 1,407 acres of suitable lands within this roadless area represents approximately 0.4 percent of all lands suitable for timber production on the Jefferson National Forest. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of October 1999. The potential for energy minerals, primarily natural gas, is estimated to be low to moderate. This area was leased under a Federal oil and gas lease in the 1980's. No oil or gas wells were drilled and the Federal lease expired. The potential for other Federal leasable minerals, including metallic minerals, is estimated to be low.

### CULTURAL RESOURCES

Approximately 43 acres have been surveyed for cultural resources within the roadless area, as of March 1998, and no historical or prehistoric sites have been identified. However, the area exhibits moderate potential for prehistoric and historic resources.

### LAND USES

There are currently no special use permit authorizations within this roadless area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands on the north, south, and west perimeters. Wilderness designation may limit options for containing fires on private and/or federal lands. The Garden Mountain roadless area is expected to be in the generally infested area for gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 77 percent of the area is composed of the Dry Mesic Oak and Dry and Dry-Mesic Oak-Pine forest types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

HOOP HOLE ID NUMBER: 14505



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service* | 5,576 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 5,576 |

* 4,643 Jefferson National Forest, 933 acres George Washington National Forest

### LOCATION, VICINITY, AND ACCESS

Hoop Hole roadless area is located on the New Castle Ranger District, Jefferson National Forest and the James River Ranger District, George Washington National Forest. The northern one third of the area is on the James River Ranger District in Alleghany County, Virginia, while the southern two thirds are on the New Castle Ranger District in Botetourt County, Virginia. The area is bounded by private land to all sides except to the northeast where a powerline is the boundary. The area is found within U.S.G.S. Virginia Quadrangle Strom. Major vehicular access is provided by VA 615 along the southeastern boundary and VA 621 along the northeastern boundary.

There are no improved roads within the area.

There are no unimproved roads within the area. However, there is one old road in the southern tip of the area that begins at VA 615 and follows Hipes Branch for approximately 1.5 miles. This road is blocked at 0.02 miles from VA 615 where a trailhead parking lot is located.

There are two Forest Development Trails (FDR) within the area. FDT 5001, the Hoop Hole Trail, is a nine mile loop trail situated between VA 615 and the crest of Pine Mountain, The trail is open to hiking, receives a moderate amount of use, and enjoys National Recreation Trail status. Approximately 1.3 miles of the Iron Ore Trail, FDT 5004, are within the roadless area boundary. This trail connects the Hoop Hole Trail to the Roaring Run Furnace area. The Iron Ore Trail receives a low amount of use and is an interpretive, as well as hiking, trail. There are several old roads in the area being used for illegal ATV traffic, particularly in the northern end near several private hunting camps.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone or shale with parallel drainages with broad limestone valleys. Included in this area are Rich Patch, Pine, and Deisher Mountains with a series of small, steep sideslope drains. Elevation ranges from approximately 1000 feet at Crawford Branch in the eastern end of the area to 3728 feet at a point along the crest of Rich Patch Mountain.

Approximately 75 percent of the area is underlain by Silurian-aged sandstone, and 25 percent is underlain by Braillier and Martinsburg shale. Ridgetop and sideslope soils consist primarily of moderately deep, loamy-skeletal Typic Dystrochrepts (Dekalb and Berks series). Footslopes and benches are often Typic Fragiudults (Laidig series) or other more productive colluvial Hapludults. Drainages contain deep loamy-skeletal Typic-Hapludults and Dystrochrepts formed in colluvium from sandstone (Oriskany and Sherando series) or shale (Shelocta series).

Vegetation is mainly broadleaf deciduous species. Approximately 30 percent of the Jefferson NF section of this roadless area has a site index of 70 or above indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages,

HOOP HOLE

toeslopes, or along alluvial floodplains of small to medium sized streams. Here, yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 70 percent of the area has a site index of 60 or less, indicating a moderate to poor productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and south and east midslope aspects with yellow pine occurring on the driest sites.

### CURRENT USE

The area is primarily used for dispersed recreation activities such as hiking or hunting. The Hoop Hole Trail system was reconstructed in 1994 and now provides a nice loop hike along streams and up to ridgetops. There is a special use permit authorization at the bottom of Crawford Branch for a cattle fence and powerline. The authorization is for an area 20 feet x 204 feet. This area is 100 feet from the edge of the roadless area. Approximately 21 percent, or 979 acres, are classified suitable for timber production within the Jefferson NF section of this area. By including the 933 acres from the George Washington NF, total suitable acres for the Hoop Hope roadless area drops to 18 percent. All minerals are owned by the U.S.A. There are no federal oil or gas leases within the area.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 1.5 mile old road and the 10.3 miles of maintained trails in the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the road and trails. Other old access roads and logging roads still exist and are evident; however, lack of maintenance and use is allowing some of them to become overgrown and regain a more natural appearance. Other old roads are being kept open by frequent illegal ATV traffic, particularly in the northern end of the area.

The varied topography of this area includes steep ravines and high ridges. This allows a visitor to have a sense of solitude that many roadless areas within the Ridge and Valley section do not offer. Except for the eastern end of the area, this roadless area is surrounded by private land.

There is some evidence of three collier pits from the late 1800's when iron ore mining was taking place.

Most of the area was cut over and frequently burned in the late 1800's and early 1900's. Approximately 94 percent of the timber in the area is in the 21-100 year old age class. Another five percent is in the 101 years plus age class and about one percent is in the 11-20 year age class. There is no timber in the 0-10 year age class. There is no inventoried possible old growth.

Approximately 933 acres of this area is located on the James River District of the George Washington National Forest. This land is in Alleghany County along the ridgetop of Rich Patch Mountain. The George Washington NF Forest Plan has allocated this area into Management Area 9 - Remote Highlands. According to the Plan, Remote Highlands are managed to provide older vegetation in remote and isolated areas where recreationists can obtain a degree of solitude and the environment can be maintained in a near-natural state where only light-on-the-land management activities occur.

Featured species for the area is 78 percent bear, 13 percent deer, and nine percent grouse.

A 90- acre wildfire occurred in this area in April 1994.

Adjacent land southwest of the roadless area is owned by Westvaco and Luken Steel.

Luken Steel has been harvesting timber right up to the National Forest boundary in recent years.

#### KEY ATTRACTIONS

The Roaring Run Furnace environs are a key attraction to the area. The area boasts a scenic waterfall, picnic area, fishing , and the Hoop Hole National Recreation Trail. There are good scenic views along the crest of Pine Mountain as well as an old sawmill site along the lower section of the trail. The rare plant, piratebush (sensitive), occurs in this area. Orangefin madtom also occurs in this roadless area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Hoop Hole roadless area appears to be natural but there are signs of recent disturbance. There are approximately 35 acres of 11-20 year old age class within the roadless area. There are also 10.3 miles of maintained trail and an old road within the area that follows Hipes Branch for approximately 1.5 miles. This road is not included on the Forest Service road inventory.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Hoop Hole roadless area is 5,578 acres in size and is located entirely on National Forest land (4,645 acres on Jefferson NF and 933 acres on George Washington NF). Landform consists of the ridgetops of Rich Patch Mountain, Pine Mountain, Deisher Mountain and several knobs divided by a series of sideslope drainages. A number of larger drainages separate these ridges. These are Hipes Branch, Stony Run, Wolf Branch, Crawford Branch, and Deisher Branch. Elevations range from 1,000 feet at Crawford Branch to 3,728 feet at a point along the crest of Rich Mountain. A solitude core area of 3,285 acres exists for the north and western sections of the Hoop Hole roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The proportion of core acres of solitude to the roadless area is approximately 59 percent. This percentage increases to 76 percent when acreage from the George Washington NF is included. There are no improved roads in the area. There are two developed trails totaling 10.3 miles. Visitors feel like they are in an unconfined, natural area. Noise from the state highways, old jeep roads, and activities on surrounding private lands can be heard along the southern boundary. The eastern end of the area is adjacent to the Roaring Run Furnace and picnic area.

It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads. Within the area there are isolated and remote areas but there is a degree of evidence of human impact. For example, old tram roads and evidence of iron ore mining can be found in the upper reaches of the area. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Hoop Hole roadless area does present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as hunting, hiking, and primitive camping are present in the area. Fishing and picnicking opportunities are adjacent to the eastern boundary of the area.

HOOP HOLE

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Hoop Hole roadless area is in the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Shawvers Run, Barbours Creek, Peters Mountain, Mountain Lake, Kimberling Creek, and Beartown. Within the Southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Barbours Creek Wilderness is the closest existing wilderness to this roadless area and is located approximately 7 air miles to the southwest.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridge tops. Shale and limestone are the bedrock on the lower slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area.

Approximately 48 percent of the area is in the Dry Mesic Oak ecological community type. Another 32 percent is in the Dry/Dry-Mesic Oak-Pine type, 15 percent is in the Xeric Pine/ Pine-Oak type, and four percent is in the Mixed and Western Mesophytic type. The remaining area is comprised of other minor ecological community types. There is no potential inventoried old growth in this area. The Hoop Hole roadless area contains the sensitive plant, piratebush.

Approximately 92 percent of this area is classified as having High Scenic Integrity.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area makes its preservation as potential wilderness practical. Most of the boundary follows property boundary lines and human improvements such as roads. Surrounding lands are primarily in private ownership except for National Forest land to the east. The private land adjacent to this area does have the potential to impact wilderness attributes but the steep ridges and side drainages would buffer the magnitude of the potential impacts.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows human made features such as roads, powerlines and property line boundaries as well as natural features such as ridges and streams. An offset from boundary roads such as VA 615 would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, paving, road alignment, etc.). An offset of approximately 300 feet from the centerline of existing roads would be recommended. The trailhead parking lot for the Hoop Hole Trail is on the north side of VA 615 near the southern end of the area. This parking lot and associated road (FDR 5079) should be left out of the roadless area.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hiking on the Hoop Hole National Recreation Trail is a key attraction for this area. Use is funneled into the area from the Hoop Hole parking lot on VA 615 and from the Iron Ore Trail entering from the Roaring Run Picnic Area, a developed recreation facility to the east of the area.

### WILDLIFE

The Hoop Hole roadless area provides habitat for diverse wildlife species. The featured species for the area is 78 percent bear, 13 percent deer, and nine percent grouse. No threatened, endangered, or sensitive wildlife species are known to occur within this roadless area.

### WATER AVAILABILITY AND USE

Most of this roadless area drains into Craig Creek. There are no known water storage needs or any existing special use water permits authorizations. Water quality should remain at its current level whether or not the area is designated wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 18 percent, or 979 acres, is classified as suitable for timber production. In the last 10 years, no timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 979 acres of suitable lands in this roadless area represent 0.3 percent of all lands suitable for timber production on the Jefferson National Forest. All minerals are owned by the U.S.A. There are no federal oil or gas leases within the area.

### CULTURAL RESOURCES

As of March, 1998, five acres of this roadless area have been surveyed for cultural resources. There are three inventoried collier pits dating to the late 1800's in the Hoop Hole roadless area. The area exhibits a low potential for prehistoric resources but a high potential for additional historic resources.

### LAND USES

There is a special use permit authorization for a 20 foot x 204 foot fence and powerline along VA 615 near Crawford Branch. The fence is approximately 85 feet off the highway.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Fire suppression would be primarily by hand tools. Use of motorized and mechanized transport and equipment such as ATV's, bulldozers, and chainsaws would be allowed only upon specific approval by the appropriate line officer. Thus, wildfires would likely attain larger sizes than under current management. Wilderness designation may limit options for containing fires. Gypsy moth infestations are in the vicinity of this roadless area right now. Mortality can be severe (up to 25-30 percent) and oaks are the preferred hosts. Approximately 80 percent of the area is composed of the Dry Mesic Oak type and Dry/Dry Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other National Forest or private land.

Portions of this roadless area are occupied by near pure stands of table mountain pine and/or pitch pine forest types. These pine-dominated stands occur primarily on southeast to southwest facing ridges and slopes with dry, well-drained soils. Table mountain pine has serotinous cones that usually require significant heat in the tree canopy from fire to open the cones, thus allowing for seed dispersal and regeneration. Other oak dominated forest types that contain a component of these pine species also occupy a large portion of this roadless area. If this area was designated wilderness, the use of management ignited prescribed fire to manipulate these fire dependent ecosystems for restoration and

HOOP HOLE

maintenance would likely not be allowed. This will result in further declines in acreage and the open structure of these forest types along with the flora and fauna these ecosystems support.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

HUNTING CAMP/LITTLE WOLF CREEK ID NUMBER: 14604



## Overview

* These acres were purchased by the National Park Service for the benefit of the Appalachian National Scenic Trail and are managed by the Forest Service under a Memorandum of Understanding.

| Surface Ownership | Acres |
|---|---|
| Forest Service | 8,771 |
| Private | 0 |
| Park Service | 169 |
| TOTAL | 8,940 |

### LOCATION, VICINITY, AND ACCESS

The Hunting Camp/Little Wolf Creek roadless area is located on the Jefferson National Forest, New River Valley Ranger District and encompasses portions of Bland and Tazewell Counties, Virginia. The area is located west of Interstate 77, north of VA 42, and south of Burkes Garden and is found within portions of the U.S.G.S. Virginia Quadrangles Bastian, Big Bend, Cove, and Garden Mountain. The area is approached by VA 623 from the west, VA 615 from the east, and Forest Development Roads (FDR) 610 and 688 from the north. No public access is available from the south.

The roadless area is generally bounded by VA 623 to the west, VA 615 to the southeast, FDR 610 to the north, and private land to the south and northwest. VA 623 divides two separate roadless areas, Hunting Camp/Little Wolf Creek and Garden Mountain. The northwestern boundary follows the crest of Garden Mountain. Additionally, there is a private road in the eastern section of the area, which extends to the southwest from VA 618. This road accesses a large section of private land that is bounded on three sides by the roadless area. There are several ATV trails on this private land, and ATV use often spills illegally onto adjacent National Forest land, primarily during hunting season.

There is one improved road within the area. FDR 61252, a gated road, enters the area from VA 623 on the western border of the roadless area and runs 0.26 miles to the west. Total improved road mileage is 0.26 miles.

One unimproved road is also within the boundaries of this roadless area. FDR 61333, 1.91 miles in length, enters the area from FDR 610 and runs in a southwesterly direction. Total unimproved road mileage is 1.91 miles.

Two Forest Development Trails (FDT) access the area. Approximately 8.7 miles of the Appalachian National Scenic Trail (FDT 1) traverse the area in an east-west direction from Garden Mountain, across Hunting Camp Creek, then parallels Little Wolf Creek to its confluence with Laurel Creek at VA 615. The High Water Trail (FDT 6507) is a foot only trail, 2.7 miles in length, and is a loop trail that intersects with the Appalachian National Scenic Trail on both ends in the eastern section of the roadless area. This trail is primarily used in the spring when portions of the Appalachian National Scenic Trail along Little Wolf Creek become flooded and impassable and during the hunting seasons. Construction of a new trail segment of the High Water Trail was completed in 1999. This segment, approximately 0.5 miles in length, connects the Appalachian Trail near the junction of Laurel Creek and Little Wolf Creek, to the High Water Trail along the ridge of Brushy Mountain. The most eastern portion of the original High Water Trail was abandoned thereby eliminating a 0.6 mile road walk along VA 615. Total net maintained trail mileage is approximately 11.4 miles.

There are old logging roads scattered throughout the area; however, few of them remain passable. One exception is an old railroad grade which runs parallel to Hunting Camp Creek that is popular with hunters.

HUNTING CAMP/ LITTLE WOLF CREEK

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Hunting Camp/Little Wolf Creek roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone and shale with parallel drainages interspersed with shale valleys. Included in this area are Garden and Brushy Mountains. Slopes vary from very steep on sideslopes to nearly flat in the larger drainages. Drainage density is high on the slopes of Brushy Mountain and lower slopes of Garden Mountain. Drainage density is far lower on the upper slopes of Garden Mountain with broader, shallower drainages. The area contains the headwaters of Hunting Camp Creek and Little Wolf Creek. Another major stream, Laurel Creek, parallels VA 615 along the eastern boundary of the area. Elevations range from approximately 2380 along Hunting Camp Creek to 4120 feet at a point along the crest of Garden Mountain.

The roadless area is forested by eastern deciduous and coniferous species. Approximately 44 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, white pine, and red maple dominate the overstory. The remaining 56 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

### CURRENT USE

All 500 acres of the Little Wolf Creek Special Management Area are located within the Hunting Camp/Little Wolf Creek roadless area. This management area was established, through the forest planning process in 1985, in order to protect this area's unique ecological features and provide for dispersed recreational activities such as hiking, hunting, camping, fishing, and nature study.

Hunting, hiking, and fishing are popular uses of the area. The section of the Appalachian National Scenic Trail passing through this roadless area receives a high amount of use, primarily due to loop trail opportunities in the area. There are two maintained developed recreation sites associated with the Appalachian National Scenic Trail within the area. The Davis Farm Campsite is a small designated camping area located a short distance away from the trail on the north side of Garden Mountain. The Jenkins Trail Shelter, and associated privy, is located on the north side of Hunting Camp Creek.

There is a trailhead parking lot located adjacent to Laurel Creek and VA 615 where the Appalachian National Scenic Trail crosses the road.

Approximately 25 percent, or 2,214 acres, of the area are classified as suitable for timber production. Inventory data indicate no privately owned, outstanding or reserved, mineral rights underlying Federal surface ownership within this roadless area.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 0.26 miles of improved road, 1.91 miles of unimproved road, and 11.4 miles of maintained trail in the roadless area are visually evident and influences ecological processes, as a minimum, in the vicinity of the roads and trails. Most of the old access and logging roads are becoming overgrown and regaining a more natural appearance though some are still evident. As a result, illegal ATV traffic is relatively low in this area, except in some areas adjacent to the private property at the southern end of VA 618. The

two developed recreation facilities, Davis Farm Campsite and Jenkins Shelter, are also visually evident and influence ecological processes in the vicinity of these sites.

Most of the area was cut over and frequently burned in the late 1800's and early 1900's. Approximately 92 percent of the timber is in the 21-100 year old class, three percent is in the 101 plus years class, and less than one percent is in the 0-20 year age class. The area has 522 acres of possible inventoried old growth.

Featured species for the area is 72 percent bear, 25 percent deer, and three percent turkey. The area contains no wildlife openings or recently seeded roads.

A Virginia pine progeny test site, planted in 1980, is located near the northern boundary along FDR 610. The planted trees in this test area are planted in rows, much like in a plantation and may influence ecological processes to some degree. There are two old settling ponds associated with manganese mining near the progeny test site. The mined area is located outside the roadless area on the north side of FDR 610. Old drums and equipment for extracting the manganese are scattered near the settling pond site. Apart from these mining relics, the ponds are beginning to appear fairly natural.

An inactive borrow pit is located within the roadless area along the eastern fringe of the area adjacent to VA 615. The pit has a vertical cut of approximately 100 feet, which has been sloughing over the years. Parts of the cut have revegetated naturally while some portions have not.

There is a large illegal dumping area within the roadless area adjacent to a switchback on VA 623. Garbage, automobiles, and large appliances can be found here. There are additional spots, within the area, near improved and unimproved roads where illegal trash dumping continues to occur.

The area is bounded to the north by a large block of National Forest land. The northwestern, southern, and a portion of the eastern boundaries adjoin large tracts of private lands. The private lands are a mix of woodlands, pastures, farms, and residences with outbuildings.

### KEY ATTRACTIONS

The ecosystems and associated wildlife along Little Wolf Creek are a key attraction of the area. Little Wolf Creek, a cascading stream through a gorge-like valley, is listed as a highlight of the Appalachian National Scenic Trail on the Wythe Ranger District. Beaver activity along the creek has created numerous ponds and marshes providing a diversity of habitat. The creek, and associated section of the Appalachian National Scenic Trail, is listed in the Virginia Wildlife Viewing Guide where it has been described as "an exceptionally scenic hike" with "excellent viewing of beaver, muskrat, turkey, reptiles and amphibians."

The Appalachian National Scenic Trail and High Water Trail, along with trails outside the roadless area, provide loop trail opportunities that are popular with hikers. Good views of Burkes Garden can be had from the Appalachian National Scenic Trail and Davis Farm Campsite on Garden Mountain. The area is also popular with hunters and some anglers.

The sensitive species, Tennessee dace, occurs within the area. Historic records indicate that Laurel Creek has supported a population of Tennessee dace, a fish species. A population of fringed gentain, a locally rare plant, is known to occur within the area. The species is listed as globally common but is extremely rare in Virginia.

HUNTING CAMP/ LITTLE WOLF CREEK

## Wilderness Capability

### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the Hunting Camp/Little Wolf Creek roadless area appears to be natural but there are signs of disturbance. There are 0.26 miles of improved road, 1.91 miles of unimproved road, and 11.4 miles of maintained trail within the area. If this roadless area becomes wilderness, the improved and unimproved roads would be in wilderness and removed from the forest's transportation system. Some old access and logging roads and trails in this roadless area have become overgrown and impassable, causing minimal impact on the area's natural ecological processes. Some illegal ATV trails are evident on National Forest land in the vicinity of the private land north of Hunting Camp Creek in the northeastern section of the area.

There are no maintained wildlife openings within the area. Evidence of an old manganese mining operation near FDR 610 is present. Two settling ponds and associated mining equipment and machinery are at this location. Apart from these mining relics, the ponds appear fairly natural. Two developed recreational facilities are evident near the Appalachian National Scenic Trail; the Davis Farm Campsite and the Jenkins Trail Shelter. Maintenance of these facilities is expected to continue regardless of the future designation of the Hunting Camp/Little Wolf Creek roadless area. The inactive borrow pit adjacent to SR 615 will continue to influence ecological processes in the surrounding area until the site is stabilized by natural processes. There are 31 acres of 0-10 year old age class within this roadless area.

A large, illegal trash dump is evident along one of the switchbacks of VA 623 along the western boundary of the area.

### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Hunting Camp/Little Wolf Creek roadless area is 8,940 acres in size of which 8,771 acres are within the proclaimed boundary of the Jefferson National Forest. The remaining 169 acres are outside the proclamation boundary. These acres are located on the north side of Garden Mountain and were purchased by the National Park Service for the benefit of the Appalachian National Scenic Trail. Elevations range from approximately 2380 feet along Hunting Camp Creek to 4120 feet at a point along the crest of Garden Mountain. A solitude core area of 5,220 acres exists in the central portion of the roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The areas near VA 623, VA 615, FDR 610, FDR 61333, and a ridgeline south of Little Wolf Creek receive a higher impact from users and are classified as roaded natural. The ratio of core acres of solitude to the roadless area is approximately 58 percent. Visitor use to the area can be described as moderate to high during the various hunting seasons and high the rest of the year. The Appalachian National Scenic Trail and High Water Trail are popular yearlong, particularly in the spring and fall. The visitor can expect to encounter other visitors at the Davis Farm Campsite and Jenkins Trail Shelter. The further away one gets from improved and unimproved roads and developed trails and facilities, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance away from the roads and trails. However, some areas will be impacted by noises associated with traffic on improved roads around the periphery of the roadless area and activities occurring on adjoining private lands. These impacts are expected to be limited to the immediate vicinity of the roads and the adjoining private lands.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases

as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Hunting Camp/Little Wolf Creek roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, fishing, hiking, primitive camping, and wildlife viewing are present in the area. The Little Wolf Creek Special Management Area, within the roadless area, offers excellent opportunities for a diversity of dispersed recreation.

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Hunting Camp/Little Wolf Creek roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (8,940 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridgetops while shale is found in the valleys and lower slopes. Minor amounts of limestone are interbedded with the sandstone on the upper slopes. This roadless area lies on the outer flank of an unusual geologic feature: Burkes Garden, a dome shaped geologic structure. Over geologic time, the top of the dome has been breached (eroded) such that only the steep sides of the original arch of rocks are present today. The valley floor within Burkes Garden is composed of older limestone rocks, which were once deep within the core of the dome but are now exposed at the surface. The Appalachian National Scenic Trail follows the rim on the southern part of Burkes Garden along several miles of the north edge of this roadless area, and offers a view across the great bowl of Burkes Garden. An excellent overlook into Burkes Garden occurs off the Appalachian Trail about 2000 feet east from its intersection with VA 623. The overlook affords a view into the bowl of Burkes Garden. Across the Garden, The Gap is visible. The Gap is a watergap in Garden Mountain at the headwaters of Wolf Creek.

Examples of Arthrophycus, the remains of ancient worm burrows or feeding tubes, can be observed on some of the surfaces of the gray sandstones along the Appalachian Trail. They look like long, finger shaped branches that occur on the flat bedding surfaces of the rock.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area's large relief and highly dissected topography creates a wide range of ecological types from hot, dry windswept ridges to cool, moist protected coves, to rich, wet bottomlands. The Little Wolf Creek Special Management Area is located within the roadless area and provides excellent opportunities for nature study. Little Wolf Creek and Laurel Creek were recently evaluated for inclusion into the National Wild and Scenic Rivers System. Both streams were determined to not be eligible for designation into the system. Portions of Laurel Creek had been channelized where it runs along the edge of VA 615 and is, therefore, ineligible for designation since it is not free-flowing. Little Wolf Creek is not eligible for designation as there are no inventoried outstandingly remarkable values associated with the stream.

The vast majority of the area, approximately 60 percent, is in the Dry Mesic Oak ecological community type. Twenty-three percent is in the Dry/Dry-Mesic Oak-Pine type, 11 percent in the Mixed/Western Mesophytic type, four percent in the Xeric Pine/Pine-Oak type, and the remainder a mixture of Conifer/Northern Hardwood, Northern Hardwood, and other minor types.

HUNTING CAMP/ LITTLE WOLF CREEK

There are 522 acres of possible inventoried old growth. The ecological community types represented are: 125 acres Dry and Dry-Mesic Oak-Pine (62 acres suitable) which represents 0.3 percent of the Forest's total, 386 acres Dry Mesic Oak (60 acres suitable) which represents 1.4 percent of the Forest's total, and 11 acres Mixed and Western Mesophytic (9 acres suitable) which represents 0.3 percent of the Forest's total.

Tennessee dace, a sensitive fish species occurs within the area,. as well as a population of fringed gentain, a locally rare plant. Approximately 87 percent of the area is classified as having high existing scenic integrity.

The Hunting Camp/Little Wolf Creek roadless area is separated from the Garden Mountain roadless area, to the west, by VA 623. The nearest existing wilderness is the Beartown Wilderness, located approximately five air miles to the west.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Hunting Camp/Little Wolf Creek roadless area makes its preservation as potential wilderness practical. The entire boundary follows property lines or roads. Although adjoining private lands contrast somewhat with the area, the effects are generally limited to the periphery along the boundary of the roadless area. Except for areas along the periphery, the high ridges and deep valleys protect this roadless area from the sights and sounds of civilization. The 2.17 miles of improved and unimproved roads receive a great deal of use, particularly during hunting season, and would be difficult returning them to a natural condition. There are no privately owned mineral rights within the area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service boundary lines and improved roads delineate all of the roadless area boundary. An offset from improved roads bounding the area would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the roads (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.). The borrow pit located adjacent to VA 615, along the eastern edge of the roadless area, would be difficult to return to a near natural condition. An offset of 100 feet from the centerline of FDR 610 and 300 feet from VA routes is recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are two developed recreation sites within this roadless area, the Davis Farm Campsite and Jenkins Trail Shelter. Both facilities are associated with the Appalachian National Scenic Trail. Dispersed recreation activities such as hiking, hunting, fishing, dispersed camping, and wildlife viewing are the largest recreation attractions to the area. The Appalachian National Scenic Trail and High Water Trail attract a great deal of hiking use, particularly through the Little Wolf Creek Special Management Area. A trailhead parking lot is located within the roadless area between VA 615 and Laurel Creek. Another trailhead parking lot is located on the west side of VA 623 just outside the boundary of the Hunting Camp/Little Wolf Creek. Dispersed camping is popular at the two developed facilities year around. Dispersed camping, associated with hunting, is also popular along VA 623 and VA 615 in the fall and early winter. No impacts to current recreation uses would be expected should this area be designated a wilderness.

### WILDLIFE

The Hunting Camp/Little Wolf Creek roadless area provides habitat for a diversity of wildlife species. Featured species of the area are 72 percent bear, 25 percent deer, and three percent turkey. No wildlife openings, recently seeded roads, or other wildlife habitat improvements exist within the area. Beaver activity, in and adjacent to Little Wolf Creek, has created a notable diversity of wildlife and habitat within the area.

### WATER AVAILABILITY AND USE

The roadless area encompasses the headwaters of Hunting Camp Creek and Little Wolf Creek. Laurel Creek, another major stream, parallels VA 615 along the eastern boundary of the roadless area. Little Wolf Creek, Laurel Creek, and Hunting Camp Creek are cool water streams with good water chemistry and good macroinvertebrate monitoring scores. Hunting Camp Creek is also a wild trout stream. There are no known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 25 percent of the area, or 2,214 acres, is classified as suitable for timber production. In the past 20 years, approximately 32 acres of timber have been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 2,214 acres of suitable lands within this roadless area represents approximately 0.7 percent of all lands suitable for timber production on the Jefferson National Forest. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of October 1999. The potential for energy minerals, primarily natural gas, is estimated to be low to moderate. This area was leased under a Federal oil and gas lease in the 1980's. No oil or gas wells were drilled and the Federal lease expired. The potential for other Federal leasable minerals, including metallic minerals, is estimated to be low.

### CULTURAL RESOURCES

Approximately 167 acres have been surveyed for cultural resources within the roadless area, as of March 1998, and no historical or prehistoric sites have been identified. However, the area exhibits moderate to high potential for prehistoric and historic resources.

### LAND USES

There are currently no special use permit authorizations within this roadless area. A segment of the Appalachian National Scenic Trail was re-routed atop Garden Mountain in 1997.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands on the northwestern and southern perimeters. A large tract of private land, surrounded on three sides by the roadless area, is located in the northeastern section of the roadless area. Wilderness designation may limit options for containing fires on private and/or federal lands. The Hunting Camp/Little Wolf Creek roadless area is expected to be in the generally infested area for gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread

HUNTING CAMP/ LITTLE WOLF CREEK

efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 83 percent of the area is composed of the Dry Mesic Oak or Dry/Dry-Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

JAMES RIVER FACE WILDERNESS ADDITION ID NUMBER: 14302



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 1,121 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 1,121 |

### LOCATION, VICINITY, AND ACCESS

James River Face Wilderness Addition roadless area is located on the Jefferson National Forest, Glenwood Ranger District, Bedford County, Virginia. The area is located approximately 3.5 air miles southeast of Glasgow and is found within a portion of the U.S.G.S. Virginia Quadrangle Snowden. The area is generally bounded by the existing James River Face Wilderness to the north and west, Blue Ridge Parkway to the southwest, a mix of other National Forest and private land to the south, and an electric power transmission corridor, paralleling US 501 and the James River, to the east. Major vehicle access is provided by US 501 to Forest Development Road (FDR) 54 from the east and US 501 to VA 600 to VA 772 to an undesignated FDR from the southeast.

There are no improved roads are within the area. However, one unimproved road accesses the area's interior. FDR 3001 leaves US 501, then parallels a powerline before crossing the powerline and continuing for a distance of 0.4 miles into the northeastern portion of the area where it terminates in a meadow area. Total unimproved road mileage is 0.61 miles.

There is one Forest Development Trail (FDT) within the area. A 1.9 mile segment of FDT 2, the Piney Ridge Trail, traverses the area from FDR 54, northwestward into the James River Face Wilderness. The trail intersects with the Appalachian National Scenic Trail (FDT 1) in the south central portion of the wilderness and is open to foot and horse use only. Total maintained trail mileage is 1.9 miles.

The area also contains several old access and logging roads. Most have become overgrown and impassable to anything but foot traffic. One of these old roads, located in the southern part of the area in the Peters Creek and Falling Rock Creek drainages, is mowed as a linear wildlife strip every few years and has been kept open for tractor access for mowing.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the James River Face Wilderness Addition roadless area lies in the Northern Blue Ridge Mountains Subsection of the Blue Ridge Mountains Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by tectonic uplifted mountain ranges composed of igneous and metamorphic rock, forming many high gradient, deeply incised streams. Peters Creek, a portion of the Snow Creek drainage, and the headwaters of an unnamed stream, are located within the area. These drainages are all tributaries to the James River. Elevations within the area range from approximately 670 feet at a point along the southside of Snow Creek in the northeastern corner of the area to 1970 feet at a point along the crest of Piney Ridge adjacent to the roadless area's boundary with the existing wilderness.

Vegetation is mainly broadleaf deciduous species with some yellow pine. Approximately five percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 95 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red

JAMES RIVER FACE WILDERNESS ADDITION

oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting, hiking, and primitive camping. Approximately 39 percent, or 439 acres, of the area are classified as suitable for timber production. Inventory data indicate 481 acres of privately owned, outstanding mineral rights underlying Federal surface ownership.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 0.61 miles of unimproved road and 1.9 miles of maintained trail in the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the road and trail. Some old roads are becoming overgrown and regaining a more natural appearance. Much of the area was cut over and frequently burned in the late 1800's and early 1900's. The predominant age range for timber in the area is 21 to 100 years, which represents approximately 68 percent of the area. The remainder of the area is composed of timber in the 101 plus years age class. There have been no timber harvesting activities in the past 20 years. The area has no possible inventoried old growth. The appearance of the area is similar to the existing James River Face Wilderness, which has many old roads that are becoming revegetated and was also cut over in the late 1800's and early 1900's.

Featured species for the area is bear. There are 13 constructed wildlife waterholes within the area. While these waterholes may disturb the natural ecological processes of the area, they also enhance wildlife populations and are gaining an increasingly natural appearance over time. One of the old access roads, located in the southern part of the area in the Peters Creek and Falling Rock Creek drainages, is mowed as a linear wildlife strip every few years and has been kept open for tractor access for mowing.

Remnants of the Snow Creek Recreation Area are located near the terminus of FDR 3001. This facility was abandoned many years ago and all that remains are two concrete slabs, the ruins of an old fireplace, and an open meadow area. The two concrete slabs and fireplace are located on the south side of the road about 0.1 miles before it enters the opening. These slabs are partially covered with litter and moss and are starting to become vegetated. The open area begins where FDR 3001 ends. This area was mowed for a period of time after the recreation area was abandoned, but it has not been mowed for several years and is beginning to be revegetated with trees and brush.

The roadless area is bounded to the north and west by the 8,886 acre James River Face Wilderness and a segment of the Blue Ridge Parkway corridor bounds the southwest corner of the area. An electric power transmission line, US 501, and private land bound the area to the east and southeast. The James River and a segment of a Chesapeake and Ohio Railroad track are within 0.1 miles of the roadless area at one point along the eastern boundary.

### KEY ATTRACTIONS

Activities associated with hunting are a key attraction to the immediate area. The Piney Ridge Trail receives a low amount of use, except during hunting season, when use can be characterized as moderate. The adjoining James River Face Wilderness provides approximately 27 miles of maintained trail, including a segment of the Appalachian National Scenic Trail. The Blue Ridge Parkway, in the southwest corner of the area, attracts thousands of visitors each year. The roadless area is adjacent to the James River Gorge Special Biological Area, an area that contains several unique ecological community

types. The biological area encompasses most of the existing James River Face Wilderness. There are no known threatened, endangered, or sensitive species within the roadless area.

## Wilderness Capability

### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is somewhat affected by outside forces. Much of the James River Face Wilderness Addition roadless area appears to be natural but there are signs of disturbance. The unimproved road and maintained trail are visually evident. If this roadless area becomes wilderness, the road would be removed from the Forest's transportation system. Some old access and logging roads have become overgrown and impassable, causing minimal impact on the area's natural ecological processes. The location of the abandoned Snow Creek Recreation Area is not evident to the casual observer. A few remnants can be seen, but would likely only be noticed by someone looking for them. The electric power transmission line, Chesapeake and Ohio railroad track, and the James River, though outside the roadless area boundary, influence ecological processes around the periphery of the area. There are no acres of 0-10 year old age class timber within this roadless area.

### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The James River Face Wilderness Addition roadless area is 1,140 acres in size and is located entirely on National Forest land. The roadless area is a proposed addition to the 8,886 James River Face Wilderness. Elevations range from approximately 670 feet at a point along the southside of Snow Creek to 1,970 feet at a point along the crest of Piney Ridge. A solitude core area of 630 acres exists in the western half of the roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximately 55 percent. If this roadless area were added to the existing James River Face Wilderness, the core area size would represent a much higher percentage. The eastern half of the area has a ROS rating of Roaded Natural due to the strong evidence of the electric power transmission line, improved roads, and railroad line just outside the roadless area boundary. The area receives most of its use during the various hunting seasons. Visitor use can be described as low during other times of the year. The further one gets away from roads and the periphery of the area, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance. Areas along the eastern boundary are impacted by the sights and noises associated with the railroad line, electric transmission line, improved roads, and activities associated with private land which may reduce the feeling of solitude and isolation. Opportunities for solitude and isolation increase as one travels further westward toward the existing James River Face Wilderness.

Much of the terrain in the western portion of the area is steep and rugged, offering the off-trail hiker/hunter good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. The eastern portion of the area is characterized by gentle to flat slopes and broad, gentle sloping drainages. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from improved and unimproved roads. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

James River Face Wilderness Addition roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, hiking, backpacking, and primitive camping are present in the area.

JAMES RIVER FACE WILDERNESS ADDITION

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

James River Face Wilderness Addition roadless area is within the Northern Blue Ridge Mountains Subsection of the Blue Ridge Mountains Ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 11,230 acres, on the Jefferson National Forest: James River Face and Thunder Ridge. Within the southern Appalachians, 4 wildernesses and 9 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by sandstone and siltstone. Soils are very droughty.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area is approximately 1.6 miles long at its widest point and exhibits an elevational difference of 1,300 feet from east to west. The James River Gorge Special Biological Area borders the roadless area to the north and west. The biological area also encompasses the existing James River Face Wilderness.

The majority of the area, approximately 54 percent, is in the Dry Mesic Oak ecological community type. The Dry/Dry-Mesic Oak-Pine community type comprises 34 percent of the area while the Xeric Pine/Pine-Oak type comprises nine percent, and the remaining three percent is comprised of the Mixed/Western Mesophytic type.

There is no possible inventoried old growth and there are no known threatened, endangered, or sensitive species within the area.

Approximately 91 percent of the area is classified as having high existing scenic integrity.

Two existing wildernesses are located in the vicinity. The James River Face Wilderness adjoins the northern and western boundaries of the roadless area. Thunder Ridge Wilderness is located approximately 2.7 air miles to the southwest.

### SIZE, SHAPE, AND MANAGEABILITY

The size, shape, and location of James River Face Wilderness Addition roadless area, when combined with the existing James River Face Wilderness, makes its preservation as potential wilderness practical. If the roadless area becomes wilderness, this would increase the size of the existing James River Face Wilderness from 8,886 acres to approximately 10,026 acres. The northern and western boundaries of the roadless area adjoin James River Face Wilderness. The remaining boundaries follow property boundary lines between the Blue Ridge Parkway, private property, roads, and an electric power transmission line corridor. Although adjoining private lands in the southeastern portion of the area contrast somewhat with the area, the effects are limited to the periphery along the boundary of the roadless area. Noises and sights associated with the electric power transmission line, improved roads, railroad line, and boating activity on the James River are generally limited to the eastern portion of the area. There are 481 acres of privately owned mineral rights within the roadless area.

### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

All of the roadless area boundary follows features such as the existing wilderness boundary, private property lines, a transmission line corridor, and roads. The northern and western boundaries adjoin the existing James River Face Wilderness. The southwestern boundary adjoins a portion of the Blue Ridge Parkway while the remaining boundary follows roads, private property boundaries, or the electric power transmission line corridor. An offset from the roads and transmission line corridor would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the

roads (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.) and maintenance activities associated with the transmission line corridor. An offset of 100 feet from the centerline of the roads and transmission line corridor is recommended and identical to that established for the adjoining James River Face Wilderness.

## Availability for Wilderness

### RECREATION, INCLUDING TOURISM

There are no developed recreation facilities within this roadless area. Hunting, hiking, backpacking, and primitive camping are key recreation attractions to the area. The Piney Ridge Trail provides access to the Appalachian National Scenic Trail located in the central portion of the existing James River Face Wilderness. The Thunder Ridge Wilderness is also located nearby, about 2.7 air miles to the southwest. No impacts to established, legal recreation uses would be expected should this roadless area be designated as wilderness.

### WILDLIFE

The James River Face Wilderness Addition roadless area provides habitat for a diversity of wildlife species. These wildlife species have not been inventoried and, therefore, population levels are only estimated. The featured species is bear. Maintenance of the wildlife linear strip would be discontinued should this roadless area be designated as wilderness. There are no known threatened, endangered, or sensitive species in the area.

### WATER AVAILABILITY AND USE

The headwaters of an unnamed tributary and portions of the Peters Creek and Snow Creek drainages are within the area and all are tributary to the James River. Peters Creek supports wild trout, has good water chemistry, and its macroinvertebrate monitoring score is very good. Snow Creek is a cool water fishery, has good water chemistry, but has a fair to poor macroinvertebrate monitoring score. There are no known water storage needs and no existing special use water authorizations within the area. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 39 percent of the area, or 439 acres, is classified as suitable for timber production. In the past 20 years, no timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 439 acres of suitable lands within this roadless area represents approximately 0.1 percent of all lands suitable for timber production on the Jefferson National Forest. Private subsurface minerals ownership is held on 481 acres within this area. The potential for shale for lightweight aggregate and structural clay products is estimated to be high. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of December 1999. The potential for energy minerals, primarily natural gas, is estimated to be low. The potential for other minerals, including metallic minerals, is also estimated to be low.

### CULTURAL RESOURCES

Approximately 280 acres have been surveyed for cultural resources, as of April 1998, within, or directly adjacent to the roadless area. Several sites related to the early canal system along the James River have been documented and recorded. Several prehistoric transient camps have also been recorded. The remaining area exhibits a moderate to high potential for additional prehistoric and historic sites.

JAMES RIVER FACE WILDERNESS ADDITION

### LAND USES

No special use permit authorizations have been issued for land uses in this roadless area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area were designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands in the southeastern portion of the area. Wilderness designation may limit options for containing fires on private and/or federal lands. The James River Face Wilderness Addition roadless area is expected to be in the generally infested area for Gypsy moth in the next five to ten years, dependent upon the success of gypsy moth Slow-the-Spread efforts in Virginia, West Virginia, and North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 88 percent of the area is composed of the Dry Mesic Oak type and Dry/Dry-Mesic Oak-Pine forest types. Several localized infestations of gypsy moth have occurred within, and adjacent, to the area in the past several years. An outbreak of the southern pine beetle in the early 1990's resulted in heavy mortality for yellow and white pines over the northern reaches of the Glenwood Ranger District. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other national forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

KIMBERLING CREEK WILDERNESS ADDITION A ID NUMBER: 14601



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 89 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 89 |

### LOCATION, VICINITY, AND ACCESS

Kimberling Creek Wilderness Addition A roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Bland County, Virginia. The area is located approximately 3.5 miles northeast of Bastian and east of Interstate 77 and is found within a portion of the U.S.G.S. Virginia Quadrangle Rocky Gap. The area is generally bounded by Kimberling Creek Wilderness to the east, south, and west and a combination of Forest Development Road (FDR) 640 and private land to the north. Major vehicle access is limited in the area but is provided by VA 612 to FDR 640 from the southwest side of the roadless area.

There are no improved or unimproved roads in the area. An old uninventoried access road, leading to a springbox on the southern edge of the roadless area, is evident. The road is 0.11 miles in length and is quickly being reclaimed by natural processes. Total improved and unimproved road mileage is 0.0 miles.

There are no developed, maintained trails within the area.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Kimberling Creek Wilderness Addition A roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone or shale with parallel drainages interspersed with broad shale or limestone valleys. Included in this area is Hogback Mountain. Typically, slopes vary from very steep on sideslopes to gentle near the larger drainages and drainage density is generally high. However, this roadless area is small in size and does not exhibit all the characteristics associated with this Section. A more representative example of the topography is associated with Kimberling Creek Wilderness, which adjoins the roadless area on three sides. The spring headwaters of North Fork are located within the roadless area. This stream is one of two major streams that flow through Kimberling Creek Wilderness that eventually flow into Kimberling Creek. Elevations range from approximately 3000 feet at a point along the southern boundary to 3240 feet at a point along the crest of Hogback Mountain in the northeast corner of the roadless area.

Vegetation is mainly oak and rhododendron. The entire roadless area has a site index of 70 or greater, indicating moderate to high productivity for tree growth.

### CURRENT USE

Hunting is the major dispersed recreation activity within the area. Dispersed camping, associated with hunting, is also popular in several sites of the roadless area adjacent to FDR 640. Approximately 48 percent, or 43 acres, of the area are classified as suitable for timber production. Inventory data indicate no privately owned, outstanding or reserved, mineral rights underlying Federal surface ownership.

KIMBERLING CREEK WILDERNESS ADDITION A

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

FDR 640, though outside the boundary of the roadless area, is visually evident and influence ecological processes, as a minimum, in the vicinity of the road. The old road leading to the springbox at the head of North Fork is still somewhat evident, but is being reclaimed by natural processes rather rapidly due primarily to storm damaged timber blocking the route. The area was cut over and frequently burned in the late 1800's and early 1900's. The age range for timber in the area is 21 to 100 years, which represents 100 percent of the area. The area has no inventoried old growth. This 89 acre area was not included in the original 1984 designation of the Kimberling Creek Wilderness because the land was not acquired until July 1988.

Featured species for the area is bear. No wildlife openings, recently seeded roads, or other wildlife habitat improvements exist within the area. The roadless area adjoins the northwestern boundary of Kimberling Creek Wilderness. To the north of the roadless area lies a large tract of steep, rugged, highly dissected private land.

#### KEY ATTRACTIONS

The roadless area abuts the existing Kimberling Creek Wilderness, which is popular with hunters, particularly during big game seasons. No Federally threatened, endangered, or sensitive species are known to exist in the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Most of the Kimberling Creek Wilderness Addition A roadless area appears to be natural but there are signs of disturbance. The old access road leading to the springbox at the head of North Fork is evident but is being reclaimed rapidly by natural processes. No timber harvest has occurred within the area since Forest Service acquisition.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Kimberling Creek Wilderness Addition A roadless area is 89 acres in size and is located entirely on National Forest land. The area is a proposed addition to the 5,542 acre Kimberling Creek Wilderness. Elevations range from approximately 3,000 feet at a point along the southern boundary to 3,240 feet at a point along the crest of Hogback Mountain in the northeast corner of the roadless area. There is no solitude core area for this small roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. However, if this roadless area were added to the existing Kimberling Creek Wilderness, the core area of the wilderness would be afforded additional protection. Visitor use to this area is moderate during hunting season and light during the rest of the year. When combined with the existing wilderness, visitors feel like they are in an unconfined, natural area. The overall influence of human activities to the area is minimal. The area appears to be natural although noises associated with Interstate 77 and FDR 640 may create some disturbances, which may reduce the feeling of solitude and isolation in the vicinity of FDR 640.

The terrain within the roadless area is relatively gentle. However, when added to the existing wilderness, the overall terrain is generally steep and rugged, with pockets of gentle to flat terrain along some ridgetops and streamcourses, offering the off-trail hiker/ hunter good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk

increases as one gets further away from the edge of the roadless area and away from improved roads. Within the adjoining wilderness area, there are vestiges of isolated, scattered pockets of forest primeval but there is a degree of evidence of human impact. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Kimberling Creek Wilderness Addition A roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting and dispersed camping are present in the area.

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Kimberling Creek Wilderness Addition A roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (89 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by sandstone and siltstone.

There are no designated Research Natural Areas or Experimental Forests within the roadless area.

The entire roadless area is comprised of the Dry Mesic Oak ecological community type and contains no inventoried old growth.

The area encompasses the spring headwaters of North Fork, the major drainage that flows through the heart of the Kimberling Creek Wilderness.

The entire roadless area is classified as having high existing scenic integrity.

The Kimberling Creek Wilderness Addition A roadless area is bounded on three sides by the Kimberling Creek Wilderness.

### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Kimberling Creek Wilderness Addition A roadless area, when combined with the existing Kimberling Creek Wilderness, makes its preservation as potential wilderness practical. The roadless area is bounded on three sides by the existing wilderness while the northern boundary follows the southside of FDR 640. The area does not contrast significantly with adjoining private lands to the north but the visitor may be able to observe the sights and sounds, at a distance, associated with Interstate 77 from high points along Hogback Mountain. There are no privately owned mineral rights within the area.

### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

The eastern, southern, and western boundaries adjoin the existing Kimberling Creek Wilderness. The northern boundary follows the southside of FDR 640. An offset from this road would enhance wilderness characteristics of the area by avoiding impacts that are a

KIMBERLING CREEK WILDERNESS ADDITION A

result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, etc.). An offset of 300 feet from the centerline of the road is recommended and identical to that established for the adjoining Kimberling Creek Wilderness.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hunting, in a remote setting, is the largest recreation attraction to the area. There are no developed, maintained trails within the proposed wilderness addition or the existing wilderness area.

#### WILDLIFE

The Kimberling Creek Wilderness Addition A roadless area provides habitat for a diversity of wildlife species. The featured species is bear.

#### WATER AVAILABILITY AND USE

The roadless area encompasses the spring headwaters of North Fork, a major drainage that flows through the existing wilderness and empties into Kimberling Creek. The area also contains the headwaters of a main tributary to Sulphur Spring Fork. There are no known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 48 percent of the area, or 43 acres is classified as suitable for timber production. In the past 20 years, no timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 43 acres of suitable lands within this roadless area represents approximately 0.01 percent of all lands suitable for timber production on the Jefferson National Forest. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of October 1999. The potential for energy minerals, primarily natural gas, is estimated to be low to moderate. This area was leased under a Federal oil and gas lease in the 1980's. No oil or gas wells were drilled and the Federal lease expired. The potential for other Federal leasable minerals, including metallic minerals, is estimated to be low.

#### CULTURAL RESOURCES

As of March 1998, no cultural resource surveys have been conducted within the roadless area. However, the area exhibits a moderate potential for prehistoric and historic resources.

#### LAND USES

There currently are no special use permit authorizations within this roadless area.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands on the north, south, and west perimeters.

KIMBERLING CREEK WILDERNESS ADDITION A

Wilderness designation may limit options for containing fires on private and/or federal lands. The Kimberling Creek Wilderness Addition A roadless area is expected to be in the generally infested area for Gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. One hundred percent of the area is composed of the Dry Mesic Oak type. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**KIMBERLING CREEK WILDERNESS ADDITION B**

KIMBERLING CREEK WILDERNESS ADDITION B ID NUMBER: 14602

| Surface Ownership | Acres |
|---|---|
| Forest Service | 195 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 195 |

## Overview

### LOCATION, VICINITY, AND ACCESS

Kimberling Creek Wilderness Addition B roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Bland County, Virginia. The area is located approximately four miles east of Bastian and Interstate 77 and is found within a portion of the U.S.G.S. Virginia Quadrangle Rocky Gap. The area is bounded by Kimberling Creek Wilderness to the north and west, private land to the east, and VA 612 to the south. Major vehicle access is provided by VA 612, which borders the area along its southern boundary.

There are no improved or unimproved roads or developed trails in the area.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Kimberling Creek Wilderness Addition B roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone or shale with parallel drainages interspersed with broad shale or limestone valleys. Included in this area are Hogback Mountain, north of the area, and Brushy Mountain, south of the area. Typically, slopes vary from very steep on sideslopes to gentle near the larger drainages and drainage density is generally high. However, this roadless area is small in size and does not exhibit all the characteristics associated with this Section. A more representative example of the topography is associated with Kimberling Creek Wilderness, which adjoins the roadless area on two sides. The headwaters of a major tributary to Kimberling Creek is located within the roadless area. Elevations range from approximately 2260 feet at a point along VA 612 to 2400 feet at a point in the northwest corner of the roadless area.

Vegetation is mainly broadleaf deciduous species and pine. The entire area has a site index of 69 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

### CURRENT USE

Hunting is the major dispersed recreation activity within the area. All 195 acres of the roadless area are classified as suitable for timber production. Inventory data indicate no privately owned, outstanding or reserved, mineral rights underlying Federal surface ownership.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

There is little evidence of recent human disturbance within the roadless area. Noises associated with vehicle traffic on VA 612 and private land to the east do influence ecological processes, as a minimum, along the periphery of the roadless boundary. Most of the area was cut over and frequently burned in the late 1800's and early 1900's. The age range for timber in the area is 21 to 100 years, which represents 100 percent of the area. The area has no possible inventoried old growth. This 195 acre area was not included in the original 1984 designation of the Kimberling Creek

Wilderness because the land was not acquired until December 1991.

Featured species for the area is bear. No wildlife openings, recently seeded roads, or other wildlife habitat improvements exist within the area. The roadless area adjoins the southwestern boundary of Kimberling Creek Wilderness. Private lands to the east and south are a combination of woodlots, farms, residences, and pastures and contrast somewhat with the appearance characteristics of the roadless area.

Unsightly conditions do occur sometimes along VA 612 due to illegal trash dumping.

#### KEY ATTRACTIONS

The roadless area abuts the existing Kimberling Creek Wilderness, which is popular with hunters, particularly during big game seasons. There are no Federally threatened, endangered, or sensitive species known to exist in the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area but the area is somewhat influenced by outside forces. The southern boundary of this roadless area adjoins VA 612, a local road that provides western access into the Kimberling Creek valley. Most of the Kimberling Creek Wilderness Addition B roadless area appears to be natural with few signs of disturbance to the casual observer. There is no timber in the 0-10 year age class.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Kimberling Creek Wilderness Addition B roadless area is 195 acres in size and is located entirely on National Forest land. This roadless area is a proposed addition to the 5,542 acre Kimberling Creek Wilderness. Elevations range from approximately 2,260 feet at a point along VA 612 to 2,400 feet at a point in the northwest corner of the roadless area that adjoins the existing wilderness area. There is no solitude core area for this small roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity (ROS) setting identified in the roadless area. However, if this roadless area were added to the existing wilderness, the core area of the wilderness would be afforded additional protection. Visitor use to this area is moderate during hunting season and light during the rest of the year. When combined with the existing wilderness, visitors feel like they are in an unconfined, natural area. The overall influence of human activities to the area is minimal. The area appears to be natural although noises associated with VA 612 and activities on adjoining private lands may create some disturbances, which may reduce the feeling of solitude and isolation, primarily along the periphery of the area.

The terrain within the roadless area is relatively gentle. However, when added to the existing wilderness, the overall terrain is steep and rugged, offering the off-trail hiker/ hunter good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from improved roads and private land. Within the adjoining wilderness, there are vestiges of isolated, scattered pockets of forest primeval but there is a degree of evidence of human impact. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Kimberling Creek Wilderness Addition B roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting and dispersed camping are present in the area.

KIMBERLING CREEK WILDERNESS ADDITION B

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Kimberling Creek Wilderness Addition B roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (195 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by siltstone and shale.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The entire roadless area is comprised of the Xeric Pine and Pine-Oak ecological community type and contains no possible inventoried old growth.

The area contains several headwater tributaries of Kimberling Creek.

The entire roadless area is classified as having high existing scenic integrity.

The Kimberling Creek Wilderness Addition B roadless area is bounded on two sides by the Kimberling Creek Wilderness.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Kimberling Creek Wilderness Addition B roadless area, when combined with the existing Kimberling Creek Wilderness, makes its preservation as potential wilderness practical. The roadless area is bounded on two sides by the existing wilderness. The remaining boundaries follow VA 612 or private property lines. Although the surrounding private lands contrast somewhat with the area, the effects are limited to the periphery along the boundary of the roadless area. There are no privately owned mineral rights within the area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

The northern and western boundaries adjoin the existing Kimberling Creek Wilderness. The southern boundary follows VA 612 and the eastern boundary abuts private land. An offset from VA 612 would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.). An offset of 100 feet from the centerline of the road is recommended and identical to that established for the adjoining Kimberling Creek Wilderness.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites or maintained, developed trails within this roadless area. Hunting and dispersed camping, associated with hunting, are the largest recreation attractions to the area.

#### WILDLIFE

The Kimberling Creek Wilderness Addition B roadless area provides habitat for a diversity of wildlife species. The featured species is bear. No wildlife habitat improvements exist within the area.

#### WATER AVAILABILITY AND USE

The roadless area encompasses the headwaters of a tributary to Kimberling Creek. There are no known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. The entire 195 acres of the roadless area is classified as suitable for timber production. In the past 20 years, no timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 195 acres of suitable lands within this roadless area represents 0.06 percent of all lands suitable for timber production on the Jefferson National Forest. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of October 1999. The potential for energy minerals, primarily natural gas, is estimated to be low to moderate. This area was leased under a Federal oil and gas lease in the 1980's. No oil or gas wells were drilled and the Federal lease expired. The potential for other leasable minerals, including metallic minerals, is estimated to be low.

#### CULTURAL RESOURCES

As of March 1998, no cultural resource surveys have been conducted within the roadless area. However, the area exhibits a moderate potential for prehistoric and historic resources.

#### LAND USES

There currently are no special use permit authorizations within this roadless area.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands on the east and south perimeters. Wilderness designation may limit options for containing fires on private and/or federal lands. The Kimberling Creek Wilderness Addition B roadless area is expected to be in the generally infested area for gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. One hundred percent of the area is composed of the Xeric Pine and Pine-Oak ecological community type. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**LEWIS FORK WILDERNESS ADDITION**

LEWIS FORK WILDERNESS ADDITION ID NUMBER: 14403

## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 748 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 748 |

### LOCATION, VICINITY, AND ACCESS

Lewis Fork Wilderness Addition roadless area is located on the Jefferson National Forest, Mount Rogers National Recreation Area, Grayson County, Virginia. The area is surrounded entirely by National Forest lands. The area is bounded by Lewis Fork Wilderness to the west, the Virginia Highlands Horse Trail (Forest Development Trail (FDT) 337) to the east, Crest Zone grazing allotments to the south, and general forest land to the north. The area is found within a portion of U.S.G.S. Virginia Quadrangles Whitetop and Troutdale. Vehicular access is provided by Forest Development Road (FDR) 613, the Pine Mountain Road, near the eastern end of the area.

There are no improved or unimproved improved roads in the area.

Two Forest Development Trails (FDT) access the area. Approximately 1.5 miles of the Appalachian National Scenic Trail (FDT 1) traverse the area in an east-west direction in the southern portion of the roadless area. This is one of the most heavily used sections of the Appalachian National Scenic Trail in Virginia as it is used to access the popular Mount Rogers High Country. The Orchard Spur Trail (FDT 4596) is a horse and foot trail that traverses approximately 0.5 miles of the area near the northern end of the roadless area. This trail is primarily used by horseback riders that wish to ride into Lewis Fork Wilderness from the Fox Creek Horse Camp or to utilize it with other trails to form loop rides. Total trail mileage is 2.0 miles.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Southern Blue Ridge Mountains Subsection of the Blue Ridge Mountains Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by tectonic uplifted mountain ranges composed of igneous and metamorphic rock, forming many high gradient, deeply incised streams. Included in this area is Pine Mountain, the dominant mountain within this roadless area. Opossum Creek runs through the eastern section of this area before flowing into Fox Creek, approximately one mile north of the roadless area. Elevation ranges from approximately 3520 feet near the northern end of the area to 5000 feet along the crest of Pine Mountain in the southwest corner.

Vegetation is mainly deciduous hardwood species with red spruce found at the highest elevations. The entire area has a site index of 70 indicating moderate to high productivity for tree growth. This area has a northern aspect with cool and wet colluvial drainages. Here, yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. Between 4000 and 4800 feet is a significant northern hardwood forest community. Here American beech, yellow birch, sugar maple, mountain maple, and striped maple dominate the forest. Red spruce is scattered throughout this area down to an elevation of about 4200 feet.

### CURRENT USE

The area is primarily used for dispersed recreation activities such as horseback riding, hiking and hunting. The section of the Appalachian National Scenic Trail passing

through this area receives a high amount of use. The Old Orchard trail shelter, a very popular shelter that is often full to capacity on weekends, is located along the western portion of this roadless area. An open field in front of the shelter is currently maintained through the use of mechanical means. A Forest Service administrative cabin is located near the southern boundary. This cabin is used by Forest Service volunteers as a base of operations for work in the High Country.

The entire area is classified unsuitable for timber production. Inventory data indicate 25 acres of privately owned outstanding mineral rights underlying Federal surface ownership.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 2.0 miles of maintained trail in the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the trails. The Old Orchard trail shelter, associated privy, and open field is a maintained facility that influence ecological processes in the vicinity of the site.

Most of the area was cut over and frequently burned in the early 1900's. The Pine Mountain Road (FDR 613), near the eastern boundary of the area, was the mainline railroad grade for hauling timber out of the High Country. Most timber in the area is in the 21-100 year old age class. However, there is a 250 acre area at the highest elevations where past logging appears to have been limited due to very steep and rocky conditions. This 250 acre area appears to be a mature northern hardwood community (submesotrophic forest). This northern hardwood community has not been inventoried for definitive old growth characteristics.

Featured species for the area is bear. The area contains no wildlife openings or other wildlife habitat improvements.

The area is surrounded by National Forest land. To the north is a strip of woods, which separates the roadless area from the 164 acre Livery West grazing pasture. To the west is Lewis Fork Wilderness. To the south is the fenceline for the Scales grazing pasture. Beyond this fence are the open lands of the crest zone. To the east are woods and the Pine Mountain Road. Beyond the road is the Little Wilson Creek Wilderness Addition B roadless area.

### KEY ATTRACTIONS

The area is very popular with hikers on the Appalachian National Scenic Trail. Activities associated with hunting are also popular in this area. Many hunters camp along FDR 613 near the eastern boundary of the area during big game hunting season.

Over 90 percent of the roadless area is within the Pine Mountain Special Biological Area. This 1427 acre Special Biological Area contains several rare plants and animals as well as remnants of a mature northern hardwood forest. The highest elevations contain a forest of red spruce.

Two rare plants and two rare animals have been documented within this roadless area.. Blue Ridge St. John's-wort and mountain rattlesnake root are sensitive species. The yellow-bellied sapsucker is a locally rare species on the Forest. Four occurrences of the hermit thrush have been found in this area. A subspecies of the northern flying squirrel has been documented within the area. The northern flying squirrel is globally secure; however, the subspecies is extremely rare and is listed as a Federally endangered species. No other threatened, endangered, or sensitive species are known to occur within the area.

LEWIS FORK WILDERNESS ADDITION

## Wilderness Capability

### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the Lewis Fork Wilderness Addition roadless area appears to be natural but there are signs of disturbance. There are 2.0 miles of maintained trail within the roadless area. These trails influence ecological processes, as a minimum, in the vicinity of the trails. Some old access and logging roads and trails in this roadless area have become overgrown and impassable, causing minimal impact on the area's natural ecological processes.

There are no maintained wildlife improvements within the area. There is one developed recreation facility near the Appalachian National Scenic Trail; the Old Orchard trail shelter and associated privy. Maintenance of these facilities is expected to continue regardless of the future designation of the Lewis Fork Wilderness Addition roadless area. Adjacent to the shelter is a field, less than one acre in size, that is kept open through mechanical means.

No timber harvesting has occurred within this roadless area in the last 20 years.

### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

This roadless area is 748 acres in size and is located entirely on National Forest land. The area is a proposed addition to the 5618 acre Lewis Fork Wilderness. Elevation ranges from approximately 3520 feet near the northern end of the area to 5000 feet at the crest of Pine Mountain in the southwest corner. A solitude core area of 544 acres exists in the central and western portions of the area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The northern and eastern areas near roads are classified as roaded natural. The ratio of core acres of solitude to the roadless area is approximately 73 percent. Visitor use to this area can be described as heavy from spring through fall. The adjacent Lewis Fork Wilderness is the sixth most heavily visited wilderness in the United States, on a per capita basis, with 4.05 visitor-days per acre. After hunting season, use is light to moderate until spring when hikers return to the area. Some hiking, cross-country skiing, and snowshoeing occurs during the winter months. The Old Orchard trail shelter is a popular destination in the winter.

The visitor can expect to encounter other visitors along the Appalachian National Scenic Trail. The further away one gets from developed trails, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance away from trails.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

This roadless area does present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as horseback riding, hiking, hunting, and primitive camping are present in the area.

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Lewis Fork Wilderness Addition roadless area is in the Southern Blue Ridge Subsection of the Blue Ridge Mountains ecosystem Section. This ecosystem subsection and section is

LEWIS FORK WILDERNESS ADDITION

represented by the following wildernesses, totaling 12,089 acres, on the Jefferson National Forest: Lewis Fork, Little Wilson Creek, and Little Dry Run. Within the Southern Appalachians, 19 wildernesses and 62 roadless areas are classified within this subsection.

Volcanic rocks, tuff and rhyolite, are the dominate rock types. The roadless area is located in the Mount Rogers volcanic center, where lava flows and ash falls blanketed the landscape hundreds of millions of years ago. The higher elevations within the area exhibit frigid soil temperatures and are associated with shorter growing seasons and northern hardwood/spruce and fir plant communities.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. Approximately 90 percent of this area is within the Pine Mountain Special Biological Area. This 1427 acre Special Biological Area contains several rare plants and animals as well as a mature northern hardwood forest. The highest elevations contain a forest of red spruce.

Approximately 84 percent of the area is in the Northern Hardwood ecological community type. Another 13 percent is in the Conifer/Northern Hardwood type, and three percent is in the Dry Mesic Oak type.

There are no acres of possible inventoried old growth in the area.

A federally listed endangered subspecies of northern flying squirrel, two sensitive plants, Blue Ridge St. John's-wort, mountain rattlesnake root, and a locally rare bird the yellow-bellied sapsucker have been documented within this roadless area.

Approximately 98 percent of the area is classified as having high existing scenic integrity.

The Lewis Fork Wilderness Addition roadless area is adjacent to the Lewis Fork Wilderness. The nearest roadless area is Little Wilson Creek Wilderness Addition B just east of this area across FDR 613.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area, when combined with the existing Lewis Fork Wilderness, makes its preservation as potential wilderness practical. If this area becomes designated wilderness, this would increase the size of the existing Lewis Fork Wilderness from 5618 acres to 6366 acres. Most of the boundary follows the Lewis Fork Wilderness boundary or the Virginia Highlands Horse Trail. However, there are two areas where the boundary follows no discernible feature. Surrounding lands are all National Forest. There are 25 acres of privately owned mineral rights within the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows features such as the Lewis Fork Wilderness boundary and the Virginia Highlands Horse Trail. There are two areas, however, where the boundary follows no discernible feature. The northern end of the follows portions of a small drainage before running west and tying into the northeast corner of the Lewis Fork Wilderness. Utilizing the Orchard Spur Trail (FDT 4596), as the northern boundary, is recommended and would allow the boundary to follow a feature on the ground. This would delete approximately 60 acres from the roadless area. The second area is along the southern boundary. Currently, the roadless area boundary appears to follow no discernible feature as it runs east to west. Extending the boundary further south and following the Scales pasture fence is recommended and would allow the boundary to follow a feature on the ground. This would add approximately 67 acres to the roadless area. A Forest Service administrative cabin is located near the southern boundary of the roadless area. This

LEWIS FORK WILDERNESS ADDITION

cabin is north of the Scales pasture fence. Placing the boundary around this cabin is recommended. An offset from FDR 613 and the Virginia Highlands Horse Trail bounding the area would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road and trail (brush clearing, grading, culvert installation and cleaning, gravel placement, alignment, etc.). An offset of 100 feet from the centerline of FDR 613 and the Virginia Highlands Horse Trail is recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There is one developed recreation facility within this roadless area, the Old Orchard trail shelter. This facility is associated with the Appalachian National Scenic Trail. Dispersed recreation activities such as horseback riding, hiking, hunting, and dispersed camping are the largest recreation attractions to the area. The operator of the Fairwood Livery takes clients on horseback rides and wagon rides on the Virginia Highlands Horse Trail along the eastern boundary of this area. The Appalachian National Scenic Trail attracts a great deal of hiking use and a trailhead parking lot is located approximately 0.5 miles north of the area along VA 603. No impacts to established, legal recreation uses would be expected should this area be designated as wilderness. Maintenance of the one-acre open area adjacent to the Old Orchard trail shelter would be discontinued to allow natural processes to resume.

#### WILDLIFE

The Lewis Fork Wilderness Addition roadless area provides habitat for a diversity of wildlife species. Featured species of the area is bear. The yellow-bellied sapsucker has been documented in this area. A subspecies of the northern flying squirrel, and listed as Federally endangered, has also been documented. In the past, the Virginia Department of Game and Inland Fisheries maintained nesting boxes for northern flying squirrel in this area. These boxes provided additional nesting sites for the squirrels, as well as a means of monitoring health and viability of the population. This project has been discontinued, and although northern flying squirrels persist in this area, population status is unknown at this time.

#### WATER AVAILABILITY AND USE

The headwaters of Opossum Creek, a tributary to Fox Creek, are found in the eastern end of this roadless area. Opossum Creek is a wild trout stream with a very good macroinvertebrate monitoring score and good water chemistry. There are no existing special use water permit authorizations or known water storage needs. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations within the roadless area. Two grazing allotments are located just outside the roadless area boundary. The Scales pasture, a part of the Crest Zone Allotment, is just south of the area. The Livery West pasture, a part of the Fairwood Allotment, is just north of the roadless area. All lands are classified as unsuitable for timber production. No timber has been harvested in this roadless area in the past 20 years. Timber harvest and the associated production of wood products from this area would be precluded by wilderness designation. Private subsurface minerals ownership is held on 25 acres within this area. No Federal oil and gas leases or other Federal leases are in effect in this area as of December 1999. The area was leased for Federal oil and gas in the 1980's; however, no oil or gas wells were drilled and the Federal leases expired. The potential for energy minerals, primarily natural gas, is estimated to be low. The potential for other leasable minerals, including metallic minerals,

is estimated to be low.

#### CULTURAL RESOURCES

As of March 1998, approximately 138 acres of this roadless area has been surveyed for cultural resources. Two prehistoric sites, a base camp and a transient camp, have been documented. The area exhibits a moderate to high potential for additional prehistoric and historic resources.

#### LAND USES

No special use permit authorizations have been issued for land uses in this roadless area. A Forest Service administrative cabin is located just inside the southern boundary.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. Wilderness designation may limit options for containing fires on federal lands. Lewis Fork Wilderness Addition roadless area is expected to be in the generally infested area for gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed timber stands can be severe (up to 25-30%) following a first defoliation and oaks are the preferred hosts. This area, however, has a small population of oaks with approximately three percent of the area composed of the Dry Mesic Oak ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other National Forest or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**LITTLE DRY RUN WILDERNESS ADDITION**

LITTLE DRY RUN WILDERNESS ADDITION ID NUMBER: 14407

| Surface Ownership | Acres |
|---|---|
| Forest Service | 2,205 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 2,205 |

## Overview

### LOCATION, VICINITY, AND ACCESS

The Little Dry Run Wilderness Addition roadless area is located on the Jefferson National Forest, Mount Rogers National Recreation Area, Wythe, Smyth, and Grayson Counties, Virginia. The area is bounded by the Virginia Highlands Horse Trail (Forest Development Trail (FDT) 337) to the north, VA 798 to the west, VA 612 and Forest Development Road (FDR) 57 to the south, and Little Dry Run Trail (FDT 305) to the east. Two developed recreation facilities, Hale Lake and Comers Rock Campground, are located along the southern boundary but are excluded from the roadless area. The Little Dry Run Wilderness is north of the area across the Virginia Highlands Horse Trail. The area is found within portions of U.S.G.S. Virginia Quadrangles Speedwell and Cedar Springs. Major vehicular access is provided by VA 798 to the west, VA 612 and FDR 57 to the south.

There are no improved roads within the area. However, the Virginia Highlands Horse Trail runs coincident with FDR 728 from US 21 westward to its intersection with the Little Dry Run Trail. This road/trail forms the boundary between the roadless area and Little Dry Run Wilderness for approximately 0.6 miles.

There are no unimproved roads within the area. Approximately 2.5 miles of uninventoried old access and logging roads still exist within the area. These are in various states of passability but some are receiving illegal ATV use.

Portions of three Forest Development Trails traverse the area. Approximately 5.7 miles of the Virginia Highlands Horse Trail (FDT 337) form the northern boundary of the roadless area. Approximately 2.5 of these miles also form the boundary between the roadless area and the existing Little Dry Run Wilderness. The Virginia Highlands Horse Trail is a regionally significant trail that traverses over 80 miles of the NRA, from Elk Garden near Whitetop Mountain, to the New River Trail State Park. The Little Dry Run Trail (FDT 305) enters the area in its northeast corner with approximately 0.5 miles located within the roadless area. The Iron Mountain Trail (FDT 301) runs for approximately 1.5 miles near the southern boundary as it parallels FDR 57. All three trails are shared use trails that are open to horseback riders, mountain bikers, and hikers. This section of the Virginia Highlands Horse Trail is also seasonally open to motorcycles from October through March. Horseback riding is the predominant use of these trails. Total maintained trail mileage is 4.5 miles.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Southern Blue Ridge Mountains Subsection of the Blue Ridge Mountains Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by tectonic uplifted mountain ranges composed of igneous and metamorphic rock, forming many high gradient, deeply incised streams. Included in this area are Buzzard Rock and Panther Knob, two dominant high points in this heavily dissected area. Kinser Creek drains much of the central portion of the roadless area. Jones Creek drains the northern part of the roadless area as it parallels the Virginia Highlands Horse Trail. These streams flow into Cripple Creek, located approximately three miles north of the roadless area. Elevation ranges from approximately 2540 feet along Jones Creek near the northern boundary to 4000 feet near the summit of Comers Rock.

Vegetation is mainly broadleaf deciduous species with some yellow pine. Approximately 34 percent of the area has a site index of 70 or greater indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages, toeslopes, or along floodplains of small to medium sized streams. Here yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 66 percent of the area has a site index of 60 or lower, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and east midslope aspects with yellow pine occurring in the driest sites. The area also contains several of Virginia's few remaining pure stands of table mountain pine, totaling 77 acres. The roadless area also includes 157 acres of table mountain pine and hardwoods and 433 acres of hardwood pine type, each of which contain a significant component of table mountain and pitch pine. These yellow pine components require fire to reproduce and is becoming increasingly uncommon within its natural range due to fire exclusion.

### CURRENT USE

Recreational use within the boundaries of this roadless area is generally light. The area is primarily used by deer hunters during the fall and spring hunting seasons. Only about two miles of maintained trail (portions of Little Dry Run and Iron Mountain trails) actually go through the roadless area. Several recreation facilities are located adjacent to the roadless area boundary, Hale Lake and Comers Rock Campground. Portions of the Virginia Highlands Horse Trail receive moderate to heavy use. Two native trout streams within the area, Kinser Creek and Jones Creek, receive moderate fishing use. Motorcycle use is permitted on a portion of the Virginia Highlands Horse Trail from October 1 through April 1 each year and this use is generally light except during the fall hunting season.

Hale Lake, seasonally stocked with trout, is located just south of the roadless area. This five- acre lake, built in the early 1960's, is very popular with anglers. Facilities include a one- mile loop trail, a parking lot for 20 vehicles, a bulletin board, and sanitary facilities.

Comers Rock recreation area is located just outside the southeastern boundary of the area. This lightly used area includes a 10 site campground, picnic area, picnic shelter, nature trail, and sanitary facility. Approximately 0.5 miles to the west of the campground is the Comers Rock Overlook, also just outside the roadless area boundary. The overlook is accessed via a 0.5 mile spur road and 0.25 mile trail. Dramatic 360 degree views can be seen from the stone and concrete observation platform at the top of Comers Rock. The overlook was built in the 1930's and was used as a fire tower. In the 1960's it was remodeled and became an observation platform.

A portion of the 'Beast of the East', a 300 mile endurance race involving canoeing, hiking, and mountain biking, was run through a portion of the roadless area in June 1998 and again in May 1999. Hiking was featured through this area.

Approximately 62 percent, or 1,357 acres, are classified suitable for timber production within the area. Inventory data indicate no privately owned, outstanding or reserved, mineral rights underlying Federal surface ownership.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 4.5 miles of maintained trail and improved roads around the periphery of the roadless area are visually evident and influences ecological processes, as a minimum, in the vicinity of the trails and roads. The Virginia Highlands Horse Trail, although a trail, often appears as a low standard road. The trail is maintained with a bulldozer and is often hardened with crushed stone applied by dump truck. About 2.5 miles of old logging roads

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still exist; however, lack of maintenance and use is allowing some of them to become overgrown and regain a more natural appearance.

Most of the area was cut over and frequently burned in the early 1900's. Approximately 94 percent of the timber is in the 21-100 year old age class. The area contains 128 acres of possible inventoried old growth.

Featured species for the area is turkey. The area contains seven wildlife openings, totaling approximately seven acres, which are regularly maintained by mowing. There is an old road in the southwest corner of the roadless area that starts at the intersection of VA 798 and VA 612. The road is approximately 0.5 miles in length and was used to access several old cabins. The cabins are gone but the foundations are still evident. There is also an open concrete reservoir in this area. This reservoir is approximately 20 feet by 20 feet and was used to supply water to the cabins.

The roadless area is surrounded on all four sides by National Forest land. Nearly all adjacent lands are forested. Several old fields and grazing allotments are located southwest of the roadless boundary in the Blue Springs Gap area.

#### KEY ATTRACTIONS

Activities associated with hunting are a key attraction to the area. The Virginia Highlands Horse Trail is popular with horseback riders. Hale Lake, Comers Rock Campground, and Comers Rock Overlook, just outside the roadless boundary, are popular recreation areas. The golden-crowned kinglet occurs in this area. There are no known Federally listed threatened, endangered, or sensitive species in this area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the roadless area appears to be natural but there are signs of disturbance. The 4.5 miles of maintained trail, numerous improved roads surrounding the area, and old access and logging roads within the roadless area are visually evident. Some of the old access and logging roads and trails in this roadless area have become overgrown and impassable, causing minimal impact on the area's natural ecological processes.

There are seven maintained wildlife openings totaling approximately seven acres within the area. The Virginia Highlands Horse Trail, through this area, is similar in appearance to a low standard road. The moderate use of the Virginia Highlands Horse Trail requires the trail to be wide and often hardened with crushed stone. Maintenance is accomplished with a bulldozer.

Some of the uninventoried old access and logging roads are receiving illegal ATV use with some being cleared for such use. There is an old, uninventoried road, approximately 0.5 miles in length, in the southwest corner of the roadless area that was used to access several old cabins. The cabins are gone but the foundations are still evident. There is also an open concrete reservoir in this area that was used to supply water to the cabins.

There are 49 acres in the 11-20 year old age class within this roadless area.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Little Dry Run Wilderness Addition roadless area is 2,202 acres in size and is located entirely on National Forest land. Elevations range from 2540 feet along Jones Creek near the northern tip to 4000 feet near the summit of Comers Rock. A solitude core area of 363 acres exists in the northern portion of the area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. This ROS classification is semi-primitive motorized due to the motorcycle use allowed on the Virginia Highlands Horse Trail. The ratio of core acres of solitude to the roadless area is approximately 16 percent. Visitor use to this area can be described as moderate from spring through fall. After hunting season, use is light until spring when horseback riders return to the area. The visitor can expect to encounter other visitors along the VHHT. The further away one gets from improved and unimproved roads and developed trails, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance away from roads and trails. However, some areas will be impacted by noises associated with traffic on improved roads around the periphery of the roadless area. These impacts would normally be expected to be limited to the immediate vicinity of the roads and trails. However, opportunities for solitude are currently diminished by the significant amount of illegal ATV use occurring within the area.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

This roadless area does present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as horseback riding, hunting, mountain biking, hiking, motorcycling, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Little Dry Run Wilderness Addition roadless area is in the Southern Blue Ridge Subsection of the Blue Ridge Mountains Ecosystem Section (2,202 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 12,089 acres, on the Jefferson National Forest: Lewis Fork, Little Wilson Creek, and Little Dry Run. Within the Southern Appalachians, 19 wildernesses and 62 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by quartzite and shale.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. Kinser Creek, along the northwestern boundary, has had stream improvement work. This work, conducted in the late 1980's, involved blasting of holes within bedrock sections, creating pools to improve fish habitat. Periodic maintenance is needed to replace cover logs within these pools.

Approximately 39 percent of the area is in the Dry Mesic Oak ecological community type. Another 25 percent is in the Dry/Dry-Mesic Oak-Pine type, 20 percent is in the Mixed/ Western mesophytic type, and 13 percent is in the Xeric Pine/Pine Oak type.

There are 128 acres of possible inventoried old growth in the area. The ecological community types represented are: 21 acres Dry and Dry-Mesic Oak-Pine (8 acres suitable) which represents 0.4 percent of the Forest's total; 102 acres of Dry Mesic Oak (40 acres suitable) which represents 0.4 percent of the Forest's total; 4 acres of Mixed and Western Mesophytic (4 acres suitable) which represents 0.1 percent of the Forest's total; and 1

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acre of Xeric Pine and Pine-Oak (0 acres suitable) which represents 0.1 percent of the Forest's total.

There are several stands of table mountain pine within the area, which offer opportunities for scientific and educational purposes. This forest type is declining and becoming increasingly rare due to wildfire suppression efforts over the past 50+ years and the lack of prescribed burning. Some animals associated with the yellow pine stands may also be imperiled by this decline.

Approximately 49 percent of the area is classified as having high existing scenic integrity.

The Little Dry Run Wilderness Addition roadless area is separated from the Little Dry Run Wilderness, to the north, by the Virginia Highlands Horse Trail. The closest roadless area to the Little Dry Run Wilderness Addition roadless area is the Little Horse Heaven roadless area located just east of the existing wilderness area and US 21.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area, when combined with the existing Little Dry Run Wilderness, makes its preservation as potential wilderness practical. If this area becomes wilderness, this would increase the size of the existing Little Dry Run Wilderness from 2858 acres to about 5060 acres. Most of the boundary follows roads and trails and streams. However, there are two areas where the boundary follows no discernible feature. Surrounding lands are all National Forest. Except for areas along the periphery, the high peaks and deep valleys protect this roadless area from the sights and sounds of civilization. The 2.5 miles of the Virginia Highlands Horse Trail between the roadless area and the wilderness receives moderate use and is maintained with bulldozers. This trail would be difficult to return to a natural condition. There are no privately owned mineral rights underlying Federal surface ownership.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows features such as roads and trails and streams. There are two areas; however, where the boundary follows no discernible feature. The Hale Lake and Comers Rock recreation areas are excluded from the roadless area. The boundaries around these two areas follow no features and would be difficult to mark on the ground. To exclude the Comers Rock recreation area, the boundary should follow the Iron Mountain Trail (FDT 301) from the intersection with Little Dry Run Trail west to FDR 57B. This would remove approximately 50 additional acres from the roadless area. To exclude the Hale Lake recreation area, the boundary should follow FDR 57B to the end and then head south to the Hale Lake Trail. The boundary can then follow the Hale Lake Trail around the lake until reaching FDR 57 near the Hale Lake dam. This would add approximately 75 additional acres to the roadless area. An offset from improved roads bounding the area would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, road alignment, etc.). An offset of 300 feet from the centerline of VA 798, VA 612, and FDR 57 is recommended. An offset of 100 feet from the Virginia Highlands Horse Trail along the northwest boundary is recommended and identical to that established for Little Dry Run Wilderness where it is adjacent to this trail.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Dispersed recreation

activities such as horseback riding, mountain biking, hiking, motorcycling, hunting, and dispersed camping are the largest recreation attractions within the area. The Virginia Highlands Horse Trail attracts a great deal of horseback use. Parking lots with trail access into the roadless area are located at Comers Rock and Hale Lake. There is also a small parking area in the northwest corner approximately 0.5 miles off VA 798. Vehicle access is permitted for 0.5 miles down the Virginia Highlands Horse Trail (coincident with FDR 337) to a locked gate. Hale Lake, Comers Rock, and Comers Rock Campground are developed recreation facilities located just outside the southern boundary of the roadless area. Established recreation uses that would be discontinued should this area be designated a wilderness include: (1) mountain biking, and (2) motorcycle riding on the Virginia Highlands Horse Trail where the trail traverses through the area.

#### WILDLIFE

The roadless area provides habitat for diverse wildlife species. Featured species of the area is turkey. Seven wildlife clearings totaling seven acres are in the roadless area. There are some stream habitat improvements in Kinser Creek which benefit a number of aquatic fish and wildlife species. If this area is designated wilderness, maintenance of the wildlife openings and stream habitat improvements in Kinser Creek would be discontinued Turkey, deer, and other wildlife species requiring early successional habitat would be expected to decline. Hunting opportunities would likely diminish over time and this could indirectly affect local economies. No federally listed threatened, endangered, or sensitive wildlife species are known to occur within this roadless area.

#### WATER AVAILABILITY AND USE

Kinser Creek drains much of the central portion of the area. Jones Creek drains the northern part of the area as it parallels the VHHT. Both streams are cool water streams with good water chemistry and support populations of wild brook trout. Both streams flow into Cripple Creek, located approximately three miles north of the roadless area. There are no known water storage needs or any existing special use water permit authorizations within the area. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 62 percent, or 1357 acres, of the area is classified as suitable for timber production. In the last 20 years, 49 acres of timber has been harvested. Timber harvest and the associated production of wood products from this area would be precluded by wilderness designation. The 1357 acres of suitable lands in this roadless area represent 0.4 percent of all lands suitable for timber production on the Jefferson National Forest. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of October 1999. The potential for energy minerals, primarily natural gas, is estimated to be low. The area is in the Gossan Lead District (1957, Stose, A.J. and Stose, G.W.). A variety of metallic minerals were prospected and mined in the district. Several abandoned iron prospects are located in the Shady dolomite in the area north and east of the roadless area. This roadless area is estimated to have a high potential for the occurrence of iron, but a low potential for the development of commercial deposits. The potential for commercial deposits of other Federal leasable minerals, including metallic minerals, is estimated to be low.

#### CULTURAL RESOURCES

As of March 1998, approximately 151 acres of this roadless area has been surveyed for cultural resources. Two prehistoric transient camps and one historic cabin complex have been identified and documented. The area exhibits a moderate potential for additional

LITTLE DRY RUN WILDERNESS ADDITION

prehistoric and historic resources.

#### LAND USES

One special use authorization has been issued within this roadless area. The 300 mile endurance race, the 'Beast of the East', occurred in June 1998 and May 1999. No other special use permit authorizations have been issued within the area.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands on the northern perimeter. Wilderness designation may limit options for containing fires on private and/or federal lands. The gypsy moth is not currently known to occur within this area. However, it is present approximately 8.5 miles to the east and appears to be expanding its range rapidly. The known population is scheduled for treatment in 2003. It is likely the moth will spread into this roadless area within the next five years but the speed is dependent upon the Slow-to Spread efforts. Mortality in already stressed timber stands can be severe (up to 25-30%) following a first defoliation and oaks are the preferred hosts. Approximately 64 percent of the area is composed of the Dry Mesic Oak type or Dry/Dry Mesic Oak-Pine ecological community types. Evidence of Southern pine beetle expansion is present both within and adjacent to this roadless area. Moving into Southwest Virginia from the south, this species is causing mortality in communities having significant yellow and white pine components. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other national forest or private land.

Approximately 11% of this roadless area is occupied by near pure stands of table mountain pine and/or pitch pine types. These pine-dominated stands occur primarily on southeast to southwest facing ridges and slopes with dry, well-drained soils. Table mountain pine has serotinous cones that usually require significant heat in the tree canopy from fire to open the cones, thus allowing for seed dispersal and regeneration. Other forest types that contain a significant component of these pine species occupy about 39% of the roadless area. If this area was designated wilderness, the use of management ignited prescribed fire to manipulate these fire dependent ecosystems for restoration and maintenance would likely not be allowed. This will result in further declines in acreage and the open structure of these forest types along with the flora and fauna these ecosystems support.

#### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

LITTLE HORSE HEAVEN ROADLESS AREA ID NUMBER: 14406



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 4,722 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 4,722 |

### LOCATION, VICINITY, AND ACCESS

Little Horse Heaven roadless area is located on the Jefferson National Forest, Mount Rogers National Recreation Area, Wythe County, Virginia. The area is bounded by private land and Forest Development Road (FDR) 49660 to the north, US 21 to the west, FDR 14 and Virginia Highlands Horse Trail to the south, and Francis Mill Creek to the east. The Little Dry Run Wilderness is located nearby, just west of US 21. The area is found within a portion of U.S.G.S. Virginia Quadrangles Speedwell and Cripple Creek. Major vehicular access is provided by US 21 to the west and FDR 14 to the south and east.

There is one improved road in the area. FDR 49650A, a gated road, enters the area from FDR 14 on the southern border of the roadless area and runs 0.62 miles to the northwest. Total improved road mileage is 0.62 miles.

There are two unimproved roads within the area. FDR 4009, a gated road, enters the area from FDR 14 on the southern border of the roadless area and runs 1.44 miles to the north. This road is coincident with a portion of the Virginia Highlands Horse Trail. FDR 49650B, a spur off of FDR 49650A, runs 0.4 miles to the southwest. Total unimproved road mileage is 1.84 miles.

Four Forest Development Trails (FDT) access the area. Approximately 2.7 miles of the Virginia Highlands Horse Trail (FDT 337) traverse the area from the crest of Horse Heaven Ridge, southward to FDR 14 in the southeast corner. An additional 2.7 miles of the Virginia Highlands Horse Trail follow the roadless area boundary up to Horse Heaven Ridge. The section of the Virginia Highlands Horse Trail along the boundary is coincident with FDR 787, a gated road. The Virginia Highlands Horse Trail is a regionally significant horse trail that traverses over 80 miles of the Mount Rogers National Recreation Area from Elk Garden, near Whitetop Mountain, to the New River Trail State Park. The Henley Hollow Trail (FDT 306) enters the area from a trailhead parking lot adjacent to US 21 in the northwest corner of the roadless area and climbs 1.6 miles to an intersection with the Virginia Highlands Horse Trail. The Rocky Hollow Trail (FDT 308) begins on the crest of Horse Heaven Ridge and runs 2.0 miles down the north side of the ridge until reaching private land. There are plans to extend the trail 1.0 mile to connect it to FDR 49660. The Horse Heaven Trail (FDT 307) is 0.35 miles long and connects the Virginia Highlands Horse Trail and Rocky Hollow Trail along the crest of Horse Heaven Ridge. All four trails are shared use trails that are open to horseback riders, mountain bikers, and hikers. Horseback riding is the predominant use of these trails as the heavily used Hussy Mountain Horse Camp is located just outside the southern boundary of this roadless area, on the south side of FDR 14. The Henley Hollow Trail, adopted by a bicycle shop in Galax, is beginning to receive more mountain bike use. Total trail mileage is 6.65 miles.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Southern Blue Ridge Mountains Subsection of the Blue Ridge Mountains Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by tectonic uplifted mountain ranges composed of igneous and metamorphic rock, forming many high gradient, deeply incised streams. Included in this area is Horse Heaven Ridge that bisects the area running west to east. There are a series of peaks along this ridge including Porter Mountain, Little Horse Heaven, High Point, and Hussy Mountain. There are no major

LITTLE HORSE HEAVEN

streams in the area, but several small streams contribute to the headwaters of Francis Mill Creek and Dry Run. Dry Run flows along the western and southwestern boundary. Francis Mill Creek flows along the eastern and southeastern boundary. These streams flow into Cripple Creek, located approximately two miles north of the roadless area. Elevation ranges from approximately 2350 feet near Francis Mill Creek on the eastern end to 3873 feet on the crest of Horse Heaven Ridge.

Vegetation is mainly broadleaf deciduous species with some yellow pine. Approximately 18 percent of the area has a site index of 70 or greater indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages, toeslopes, or along floodplains of small to medium sized streams. Here yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 82 percent of the areas has a site index of 60 or lower, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and east midslope aspects with yellow pine occurring in the driest sites.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as horseback riding, mountain biking, hiking and hunting. The section of the Virginia Highlands Horse Trail passing through this area receives a high amount of use, primarily due to the nearby Hussy Mountain Horse Camp. A loop ride through the roadless area utilizing the Virginia Highlands Horse Trail is one of the more popular rides out of the horse camp.

Deer and turkey hunting comprises a significant amount of the total use of this area. Populations of these game species are currently considered good. However food sources for deer and other animals that require early successional habitat are declining due to an aging habitat condition.

The Henley Hollow trailhead parking lot is located on the western edge of the roadless area adjacent to US 21. This lot was built in 1992 and provides parking for six to eight vehicles.

The Hussy Mountain Horse Camp is located on the south side of FDR 14, near the southern boundary of the roadless area. This horse camp has two camping loops, bathrooms, and hitching racks. The camp is at, or near, capacity most weekends during the summer.

Approximately 58 percent, or 2752 acres, are classified suitable for timber production within the area. Inventory data indicate that this area has 605 acres of privately owned reserved mineral rights underlying Federal surface ownership.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 0.62 miles of improved road, 1.84 miles of unimproved road, and 6.65 miles of maintained trail in the roadless area are visually evident and influences ecological processes, as a minimum, in the vicinity of the roads and trails. The Virginia Highlands Horse Trail, although a trail, often appears as a low standard road. The trail is maintained with a bulldozer and is often hardened with crushed stone applied by dump truck. Many old logging roads still exist; however, lack of maintenance and use is allowing many of them to become overgrown and regain a more natural appearance.

Most of the area was cut over and frequently burned in the early 1900's. The predominant age range for timber in the area is 21-100 years, which represents 85 percent of the area.

Eight percent of the timber is in the 101 plus years class, two percent is in the 0-10 year class, and two percent is in the 11-20 year class. The roadless area has 534 acres of possible inventoried old growth.

Featured species is 83 percent deer and 16 percent gray squirrel. There are eight wildlife openings totaling approximately nine acres, which are regularly maintained by mowing. There are four sprout openings, totaling 5.5 acres, which were created in 1992 to provide food and cover for various wildlife species. One developed waterhole exists within the area. These improvements are designed to enhance wildlife habitat for many species over time. Although these improvements disturb the natural ecological processes of the area, this condition would be expected to diminish and gain an increasingly natural appearance over time. The Virginia Department of Game & Inland Fisheries planted and maintains 80 shrubs that benefit wildlife in the area.

An inactive borrow pit, whose material was used to build Hussy Mountain Horse Camp, is located approximately 0.5 miles north of FDR 14 and the horse camp. The vertical cut is sloughing and beginning to revegetate.

Two old manganese mines are located near the northern boundary of the area. A one-acre mine with vertical cuts of nearly 30 feet is located near the end of FDR 49660 just inside the boundary of the roadless area. This mine was seeded in 1992. A nine- acre mine is located just outside the roadless area boundary near the northeast corner. This old mine is visible from many miles away and has a vertical wall of approximately 100 feet. No reclamation work has been done on this mine. It is sometimes referred to, locally, as the "grand canyon".

The area to the north of the roadless area is mostly private land. The private lands are a mix of woodlands, pastures, farms, and residences with outbuildings. The Speedwell Sanitary Landfill is located on VA 650, one mile north of the roadless area. The eastern, southern, and western boundaries adjoin large blocks of National Forest land.

#### KEY ATTRACTIONS

The area is very popular with horseback riders. The Hussy Mountain Horse Camp, adjacent to the roadless area, provides a starting point for many loop rides into the area. The Virginia Highlands Horse Trail, in particular, receives heavy use. The other trails in the area receive moderate use. Mountain biking is a growing activity in this area and most of this use occurs on the Henley Hollow Trail and Virginia Highlands Horse Trail. Activities associated with hunting are also a key attraction to this area. Many visitors camp along FDR 14 along the southern boundary of the roadless area during hunting season.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is somewhat affected by outside forces. Much of the Little Horse Heaven roadless area appears to be natural but there are signs of recent disturbance. The improved and unimproved roads and maintained trails within the roadless area are visually evident. If this roadless area becomes wilderness, the improved and unimproved roads would be in wilderness and removed from the Forest's transportation system. Some old access and logging roads and trails in this roadless area have become overgrown and impassable, causing minimal impact on the area's natural ecological processes.

There are eight maintained wildlife openings totaling approximately nine acres within the area. There are also four sprout clearings totaling four acres. Evidence of an old, one acre, manganese mine just south of FDR 49660 remains; however, it was seeded in 1992. A

LITTLE HORSE HEAVEN

larger, nine- acre, manganese mine is located just outside the roadless area boundary in the northeast corner. An old borrow pit is located 0.5 miles north of FDR 14 and the Hussy Mountain Horse Camp. An abandoned powerline runs through about 0.5 miles of the northern tip of the roadless area. A water hole for horses is located north of FDR 14 and west of FDR 4009, along the southern boundary of the area. The Virginia Highlands Horse Trail, through this area, is similar in appearance to a low standard road. The heavy use of the Virginia Highlands Horse Trail requires the trail to be wide and often hardened with crushed stone. Maintenance is accomplished with a bulldozer.

There are 84 acres of timber in the 0-10 year old age class and 97 acres in the 11-20 year old age class within the roadless area.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Little Horse Heaven roadless area is 4744 acres in size and is located entirely on National Forest land. Elevations range from 2350 feet near Francis Mill Creek on the eastern side to 3873 feet along the crest of Horse Heaven Ridge. A solitude core area of 2985 acres exists in the central and northern portions of the area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The areas near US 21, FDR 14, and FDR 787 are classified as roaded natural. The ratio of core acres of solitude to the roadless area is approximately 63 percent. Visitor use to this area can be described as moderate to heavy from spring through fall. After hunting season, use is light, until spring, when horseback riders return to the area. The visitor can expect to encounter other visitors along the Virginia Highlands Horse Trail. The further away one gets from improved and unimproved roads and maintained trails, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance away from roads and trails. However, some areas will be impacted by noises associated with traffic on improved roads around the periphery of the roadless area and activities occurring on adjoining private lands. These impacts are expected to be limited to the immediate vicinity of the roads and trails and adjoining private lands.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Little Horse Heaven roadless area presents a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as horseback riding, mountain biking, hiking, hunting, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Little Horse Heaven roadless area is in the Southern Blue Ridge Subsection of the Blue Ridge Mountains ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 12,089 acres, on the Jefferson National Forest: Lewis Fork, Little Wilson Creek, and Little Dry Run. Within the Southern Appalachians, 19 wildernesses and 62 roadless areas are classified within this subsection.

Geologic rock types within this roadless area are dominated by quartzite and shale. Some dolomite and limestone may be present along the northern and eastern edge of the area.

There are no designated Research Natural Areas or Experimental Forests within the roadless area.

Francis Mill Creek, along the eastern boundary, has had stream improvement work. This work involved utilizing heavy equipment for removal of significant debris jams resulting from pine beetle mortality in areas previous disturbed by mining operations, placement of logs and boulders within braided channels and stabilization of eroding banks. Fish habitat was also improved through installation of cover logs and blasting of potholes in selected bedrock sections to create pools. This stream work improved water quality and habitat for trout and other aquatic organisms. Periodic maintenance has been required to protect these improvements. Approximately 39 percent of the area is in the Dry Mesic Oak ecological community type. Another 38 percent is in the Dry/Dry-Mesic Oak-Pine type, 10 percent is in the Xeric Pine/Pine Oak type, eight percent is in the Mixed/Western mesophytic type, and three percent is in the Conifer/Northern Hardwood type.

There are 534 acres of possible inventoried old growth in the area. The ecological community types represented are: 136 acres Dry and Dry-Mesic Oak-Pine (72 acres suitable) which represents 2.8 percent of the Forest's total, 324 acres of Dry Mesic Oak (200 acres suitable) which represents 1.2 percent of the Forest's total, 59 acres of Mixed and Western Mesophytic (0 acres suitable) which represents 1.6 percent of the Forest's total, and 15 acres of Xeric Pine and Pine-Oak (15 acres suitable) which represents 1.7 percent of the Forest's total.

Several populations of the Carolina hemlock, a sensitive species, occur within this area. This species can be damaged or destroyed by the hemlock wooly adelgid which is present within the Francis Mill Creek and East Fork Dry Run drainages. Some crown thinning of the Carolina hemlock has been observed as a result of these infestations.

A 900- acre prescribed fire, of which 350 acres were within the roadless area, was implemented in the spring of 1998. The Virginia Highlands Horse Trail was the boundary for the prescribed fire. This understory burn was conducted for the following reasons: to modify forest composition and structure by decreasing fire intolerant species such as red maple and white pine, to reduce fuel load, to improve oak regeneration to benefit mast production for wildlife, and to enhance table mountain pine regeneration.

No Federally listed threatened or endangered, species are known to occur within this area.

Approximately 63 percent of the area is classified as having high existing scenic integrity.

The Little Horse Heaven roadless area is separated from the Little Dry Run Wilderness, to the west, by US 21. The nearest roadless area is the Little Dry Run Wilderness Addition, just west of the wilderness.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area makes its preservation as potential wilderness reasonably practical. Much of the boundary follows property boundary lines and roads. However, there are three areas where the boundary follows no discernible feature. Surrounding lands are mostly Forest Service, except for private land to the north. Although adjoining private lands contrast somewhat with the area, the effects are generally limited to the periphery along the boundary of the roadless area. Except for areas along the periphery, the high peaks and deep valleys protect this roadless area from the sights and sounds of civilization. The 2.7 miles of the Virginia Highlands Horse Trail receives heavy use and is maintained with bulldozers. This trail would be difficult to return to a natural condition. There are 605 acres of privately owned, reserved, mineral rights within the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Much of the boundary follows features such as roads and property line boundaries. There

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are three areas; however, where the boundary follows no discernible feature. There is a 0.75 mile section of boundary in the northwest corner that follows no feature. Extending the boundary to follow the National Forest property line is recommended. This would add approximately 90 acres to the area. In the center of the roadless area, the boundary runs south from the Virginia Highlands Horse Trail down to FDR 14 and follows no feature. Extending the boundary to the east and following the Virginia Highlands Horse Trail down to FDR 14 is recommended. This would remove approximately 350 acres from the area and remove all roads and borrow pits from the roadless area. The roadless area boundary also goes around the old nine- acre manganese mine in the northeast corner. This old mine would be difficult to return to a natural condition and the boundary should go around the mine. An offset from improved roads bounding the area would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, road alignment, etc.). An offset of 300 feet from the centerline of US 21 is recommended and identical to that established for the adjacent Little Dry Run Wilderness. This would also place the Henley Hollow parking lot outside the roadless area. An offset of 300 feet along FDR 14 along the eastern boundary of the area is recommended. This would allow wildlife clearings to remain outside the area and allow for future heavy equipment work in Francis Mill Creek. An offset of 100 feet along the remaining portions of FDR 14 and the Virginia Highlands Horse Trail is recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Dispersed recreation activities such as horseback riding, mountain biking, hiking, hunting, and dispersed camping are the largest recreation attractions to the area. The Virginia Highlands Horse Trail attracts a great deal of horseback use. A trailhead parking lot is located adjacent to US 21 at the beginning of the Henley Hollow Trail. The Hussy Mountain Horse Camp is located just outside the southern boundary of the area. Established uses that would be discontinued should this area be designed a wilderness include: (1) mountain biking, and (2) heavy equipment maintenance of the Virginia Highlands Horse Trail where this trail passes through the roadless area.

#### WILDLIFE

The Little Horse Heaven roadless area provides habitat for a diversity of wildlife species. Featured species of the area is 83 percent deer and 16 percent gray squirrel. There are eight wildlife clearings totaling nine acres and four sprout clearings totaling 5.5 acres are within the roadless area. There are a number of stream habitat improvements in Francis Mill Creek which benefit a number of aquatic fish and wildlife species. If this area is designated a wilderness, maintenance of the wildlife clearings, sprout openings, and stream improvements in Francis Mill Creek would be discontinued. Deer and other wildlife species requiring early successional habitat would be expected to decline. Hunting opportunities would likely diminish over time and this could indirectly affect local economies. No federally listed threatened, endangered, or sensitive wildlife species are known to occur within this roadless area.

#### WATER AVAILABILITY AND USE

A small pond, less than one acre in size, is located along the Rocky Hollow Trail. Dry Run flows along the western and southwestern boundary. Francis Mill Creek flows along the eastern and southeastern boundary. All water from this roadless area ultimately drains into Cripple Creek. Francis Mill Creek has good water chemistry, a very good macroinvertebrate monitoring score, and supports a wild trout and stocked trout fishery. Water quality is expected to remain at its current level whether or not the area is

designated as wilderness. A reservoir for Hussy Mountain Horse Camp is located 100 feet north of FDR 14 along the southern boundary of the roadless area. There are no existing special use water permit authorizations or other known water storage needs.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 58 percent, or 2752 acres, of the area is classified as suitable for timber production. In the last 20 years, approximately 181 acres of timber has been harvested. Timber harvest, and the associated production of wood products, from this area would be precluded by wilderness designation. The 2752 acres of suitable lands in this roadless area represents 0.9 percent of all lands suitable for timber production on the Jefferson National Forest. Private subsurface minerals ownership is held on 605 acres within this area. No Federal oil and gas leases or other Federal leases are in effect in this area as of December 1999. The potential for energy minerals, primarily natural gas, is estimated to be low. This area is in the Gossan lead District (1957, Stose, A.J. and Stose, G.W.). A variety of minerals were prospected and mined in the district. Several abandoned iron prospects are located in the Shady dolomite along the northern and eastern border of the roadless area. This roadless area is estimated to have a high potential for the occurrence of iron, but a low potential for development of commercial iron deposits. The potential for commercial deposits of other Federal leasable minerals, including metallic minerals, is estimated to be low.

### CULTURAL RESOURCES

As of March 1998, approximately 339 acres of this roadless area has been surveyed for cultural resources. Four transient camps, a quartzite quarry, and a quartzite reduction station have been documented. In addition, a 19th century colliers pit and waterworks are also documented. The area exhibits a moderate to high potential for additional prehistoric and historic resources.

### LAND USES

No special use permit authorizations have been issued for land uses in this roadless area. An abandoned borrow pit is located 0.5 miles north of FDR 14 near the southern boundary of the area. A one-acre abandoned manganese mine is located just south of FDR 49660. A horse watering hole is located just west of FDR 4009 and north of FDR 14. A reservoir that provides running water to the Hussy Mountain Horse Camp is located just north of FDR 14. An abandoned powerline runs through the extreme northern tip of the roadless area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands on the northern perimeter. Wilderness designation may limit options for containing fires on private and/or federal lands. A gypsy moth infestation is known to occur approximately 1.2 miles east of this roadless area and is scheduled for Slow-the Spread treatment in 2003. It is likely the moth will spread into this area within the next few years if it has not already done so. The degree of infestation will depend on the treatment success.. Mortality in already stressed timber stands can be severe (up to 25-30%) following a first defoliation and oaks are the preferred hosts. Approximately 77 percent of the area is composed of the Dry Mesic Oak type or Dry/Dry Mesic Oak-Pine ecological community types. The effects of Southern pine beetle have been seen in portions of the area. Moving into Southwest Virginia from the south, this species is causing some mortality in communities having significant yellow and white pine components. Wilderness designation would make control of insect and disease

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infestations more difficult, thus increasing the chances that they may spread to other national forest or private land.

Approximately 10% of this roadless area is occupied by near pure stands of table mountain pine and/or pitch pine types. These pine-dominated stands occur primarily on southeast to southwest facing ridges and slopes with dry, well-drained soils. Table mountain pine has serotinous cones that usually require significant heat in the tree canopy from fire to open the cones, thus allowing for seed dispersal and regeneration. Other forest types that contain a significant component of these yellow pine types occupy about 39% of the roadless area. If this area was designated wilderness, the use of management ignited prescribed fire to manipulate these fire dependent ecosystems for restoration and maintenance would likely not be allowed. This will result in further declines in acreage and the open structure of these forest types along with the flora and fauna these ecosystems support.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

LITTLE WALKER MOUNTAIN ROADLESS AREA ID NUMBER: 14609



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 9,761 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 9,761 |

### LOCATION, VICINITY, AND ACCESS

The Little Walker Mountain roadless area is located on the Jefferson National Forest, New River Valley Ranger District and encompasses portions of Bland, Pulaski, and Wythe Counties, Virginia. The area is located north of Interstate 81 and northwest of the Town of Pulaski. In general, the center of the roadless area is at the intersection of the Bland, Pulaski, and Wythe County lines. The area is found within portions of the U.S.G.S. Virginia Quadrangles Long Spur and Pulaski. The area is approached by numerous State maintained roads and Forest Development Roads (FDR). VA 600 and FDR 707 provide access from the east, VA 738 from the north, VA 641 and FDR 692 from the east, and VA 710 and FDR 202 from the south.

VA 600 forms the northwestern boundary of the roadless area while VA 738 forms the northeastern boundary. VA 641 approaches the area from the east until it becomes FDR 692 as it enters National Forest land. VA 710 and FDR 202 form a large portion of the south and southeastern boundary and FDR 707 forms the southwestern boundary. A 50 foot-wide natural gas pipeline right-of-way bounds approximately 1.4 miles of the southeastern corner. FDR's 692 and 6791 form part of an interior eastern boundary.

The northwestern boundary was adjusted with the AEP 765 kV Transmission Line decision (12/20/02). The new boundary section follows the powerline corridor for short distance just north of FDR 707 before tying into that road. The roadless area has been reduced by 54 acres.

There are four improved roads within the area. FDR 67311 is located south of VA 641 and crosses over private land for approximately 0.1 miles before entering and continuing on National Forest land for 0.5 miles. FDR 6791 forms part of an interior boundary for approximately 0.6 miles to the north of FDR 692 before continuing 1.5 miles west into the interior of the roadless area south of the crest of Little Walker Mountain. FDR 692 enters the area along Tract Fork and runs westward 0.4 miles into the interior to a locked gate. FDR 6801 is gated where it enters the area to the north of FDR 707 along the southwestern boundary and runs north and southeast for 0.67 miles. Total improved road mileage is 3.07 miles.

There is also one unimproved road within the boundaries of this roadless area. FDR 6903, 1.32 miles in length, enters the area to the south of VA 738 and runs south and west. Total unimproved road mileage is 1.32 miles.

Two Forest Development Trails (FDT) access the area. The Tract Fork Trail (FDT 6516) is 4.0 miles in length and is open to hikers, horseback riders, and mountain bikes. The trail, rated easy, begins at a trailhead parking lot at the end of FDR 692, continues westward paralleling Tract Fork, and climbs to the crest of Little Walker Mountain where it terminates at a trailhead parking lot along VA 600. The Polecat Trail (FDT 6517) is a moderately difficult 1.5 mile trail open to hikers and mountain bikes. The trail begins at a small trailhead parking lot on the north side of FDR 707 and travels northeast to where it intersects with the Tract Fork Trail. Both trails provide good access to the central and western portion of the roadless area and receive a low amount of use during the normal use season. Use increases to a moderate level during hunting season. Total maintained trail mileage is 5.5 miles.

A jeep trail enters the area from the extreme eastern boundary on Tract Mountain and

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runs for approximately 5.0 miles along the crests of Tract and Chestnut Mountains. The trail receives 4-wheel drive and illegal ATV use, especially during hunting season. There is also a strong presence of illegal jeep and ATV use on the many other old roads that lace the area, particularly along the eastern end of the area, where several private hunting camps are located adjacent to National Forest land. There are many other old logging roads on and around Chestnut and Tract Mountains in the southeast corner of the roadless area. Some of the old roads are in the process of being reclaimed by natural processes while others are being kept open by illegal uses.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Little Walker Mountain roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone and shale with parallel drainages interspersed with broad limestone or shale valleys. Included in this area are Little Walker, Piney, Tract, and Chestnut Mountains. Slopes vary from very steep on sideslopes to gentle in some drainages. Drainage density is very high to high throughout the area and are generally narrow and deep with steep sideslopes. The area contains the headwaters for a multitude of tributaries that feed major streams, including Little Walker Creek, Panther Lick Hollow, Laurel Hollow, Tract Fork, Pondlick Branch, Eddys Branch, and Peak Creek. Elevation ranges from approximately 2080 feet near Little Walker Creek to 3120 feet at a point along the crest of Little Walker Mountain.

The roadless area is forested by eastern deciduous and coniferous species. Approximately 11 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, white pine, and red maple dominate the overstory. The remaining 89 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites. The area also contains several of Virginia's few remaining pure stands of table mountain pine. This species requires fire to reproduce and is becoming increasingly uncommon within its natural range due to fire exclusion.

### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting, fishing, hiking, mountain bike riding, horseback riding, and dispersed camping associated with hunting. Illegal ATV use is also popular along the areas old roads and informal trails. Approximately 36 percent, or 3,498 acres, of the area are classified as suitable for timber production. The lower reaches of Piney Mountain, north of FDR 707 and adjacent to FDR 6801, are being actively managed with prescribed fire to stimulate the natural reproduction of table mountain pine in an effort to maintain the species on the site. A rain gauge, one of a series of such gauges in southwest Virginia, is located north of VA 710 near Eddys Branch. The 15 foot high rain gauge occupies a small cleared area and readings are reported automatically via a radio signal to the Virginia Office of Emergency and Energy Services, which operates the site under a special use authorization. A natural gas pipeline, also operating under an authorized special use permit, forms a portion of the southeastern boundary of the roadless area. The Peak Creek drainage, along the southern boundary of the roadless area, is approximately 37 percent of the public water supply for the Town of Pulaski. The water is impounded in Gatewood Reservoir before delivery to the town. A portion of the area lies directly under a flight path used for low level flight training by the US military on a regular basis. Inventory data indicate 1786 acres of private owned, outstanding or reserved, mineral rights underlying Federal surface ownership.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 3.07 miles of improved road, 1.32 miles of unimproved road, and 5.5 miles of maintained trail in the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads and trails. Many old access roads and logging roads still exist and are evident. Some are becoming overgrown and are regaining a more natural appearance. Others, including the jeep trail along Tract Mountain, are being kept open by frequent 4-wheel drive vehicles and illegal ATV traffic.

The northwest corner of the roadless area boundary is adjacent to a section of the planned AEP 765 kV powerline corridor. Sights and sounds of the powerline will be apparent from within the roadless area in the proximity to the corridor.

Most of the area was cut over and frequently burned in the late 1800's and early 1900's. Approximately 89 percent of the timber is in the 21-100 year old class, five percent is in the 101 plus years class, one percent in the 0-10 year class, and one percent in the 11-20 year class. The area has 81 acres of possible inventoried old growth.

Featured species for the area is 90 percent turkey and 10 percent deer. Wildlife openings are scattered throughout the roadless area and total approximately 10 acres. The openings are currently kept open through regular mowing and prescribed burning. There is an artificial wildlife pond north of FDR 6791 which was blasted into the rock on top of Little Walker Mountain. While this pond may disturb the natural ecological processes of the area, it also enhances wildlife populations and is gaining an increasingly natural appearance over time.

There are two old homesites just south of FDR 692 which may be influencing ecological processes in their immediate vicinity. These homesites are becoming overgrown and beginning to blend with the natural landscape.

The rain gauge located on north of VA 710 may influence ecological processes in the immediate vicinity of the site. The natural gas pipeline corridor along the southeastern boundary is regularly maintained by the permittee and, as such, may be influencing ecological processes for some distance away. Corridor maintenance involves the removal of all woody vegetation within the 50 foot wide right-of-way.

There is a large illegal dumping area within the roadless area at the intersection of VA 738 and FDR Road 6903. A wide variety of trash ranging from garbage and diapers to automobiles and large appliances covers approximately one-half acre.

The area is bounded to the north and east by private land, to the south by National Forest and private lands, and to the west primarily by National Forest lands. A large block of National Forest land is located to the immediate south and southeast of the roadless area; however, the block is broken up by an existing 50 foot natural gas pipeline right-of-way. The Town of Pulaski is approximately 1.5 air miles from the roadless area's southeastern boundary.

### KEY ATTRACTIONS

The Tract Fork and Polecat Trails, which receive a moderate amount of use during hunting season, are key attractions to the area. The area is a very popular hunting area for both small and big game. Tract Fork and Peak Creek support wild trout. Gatewood Reservoir, just south of the roadless area, is a developed recreation facility owned and operated by the Town of Pulaski. Camping, fishing, boating, hiking, and picnicking are popular activities at this facility.

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Sword-leaved phlox occurs within a portion of the area. This plant species is on the Regional Forester's sensitive list and is listed very rare globally, as well as very rare within Virginia. There are no other known Federally threatened, endangered, or sensitive species within the area.

## Wilderness Capability

### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is somewhat affected by outside forces. Much of the Little Walker Mountain roadless area appears to be natural but there are signs of disturbance. There are 4.39 miles of improved and unimproved road, and 5.5 miles of maintained trail within the area, as well as many miles of old logging roads kept open by jeep and illegal ATV use. These roads and trails influence ecological processes, as a minimum, in the vicinity of these roads and trails, which may influence the distribution pattern of certain wildlife species. If this roadless area becomes wilderness, the improved and unimproved roads would be in wilderness and removed from the Forest's transportation system. A steady law enforcement presence in this area would be required to deter the illegal ATV use. Some of the old roads and trails in this roadless area have become overgrown and impassable, causing minimal impact on the area's natural ecological processes.

While the maintenance of wildlife openings and the artificial wildlife pond have affected natural ecological processes in the area, the range of influence is limited in extent. The area occupied by the Virginia Office of Emergency and Energy Services rain gauge is small in size and influences ecological processes in the area immediately surrounding this facility. There are 73 acres of 0-10 year old age class timber within this roadless area.

A large, illegal trash dump is evident at the intersection of VA 738 and FDR 6903. The central portion of the roadless area receives less human impact due its remoteness and rugged terrain.

### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Little Walker Mountain roadless area is 9,815 acres in size and is located entirely on National Forest land. Three mountain ranges bisect the area in a southwesterly to northeasterly direction: Little Walker, Tract, and Chestnut Mountains. Elevations range from approximately 2080 feet near Little Walker Creek to 3120 feet at a point along the crest of Little Walker Mountain. A solitude core area of 3,505 acres exists in the central and northeastern portions of the roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximately 36 percent. Visitor use to the area can be described as moderate to high during the various hunting seasons and low during the rest of the year. The two Forest Development Trails are popular yearlong, particularly with local residents. The further away one gets from improved and unimproved roads and developed trails, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance away from the roads and trails. However, some areas will be impacted by noises associated with traffic on improved roads around the periphery of the roadless area, activities occurring at Gatewood Reservoir along the southern boundary, activities associated with adjoining private land along the northern and eastern boundaries, noises from military jet training flights, and illegal ATV traffic scattered throughout the roadless area. Additionally, Norfolk-Southern maintains a railway south of the area adjacent to the National Forest. This line is a major corridor for north and southbound freight, and railroad noises can be heard from within the roadless area on calm days.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good

opportunities for self-reliance and challenge in orienteering and backcountry primitive camping, particularly in the central portion of the area. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Little Walker Mountain roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, fishing, hiking, mountain biking, horseback riding, and primitive camping are present in the area.

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Little Walker Mountain roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (4,184 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by shale and sandstone. Shale is found in the valleys and lower slopes while sandstone is found on the upper slopes and ridgetops. Minor amounts of carbonate rocks, limestone or dolomite, may also be present.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area's large relief and highly dissected topography creates a wide range of ecological types from hot, dry windswept ridges to cool, moist protected coves, to rich, wet bottomlands. There are several stands of table mountain pine within the area, which offer opportunities for scientific and educational purposes.

The vast majority of the area, approximately 69 percent, is in the Dry and Dry-Mesic Oak-Pine ecological community type. Fifteen percent is in the Xeric Pine and Pine-Oak type, 14 percent in the Dry Mesic Oak type, and the remainder is a mix of Mixed and Western Mesophytic and Conifer-Northern Hardwood types.

There are 81 acres of inventoried possible old growth. The ecological community types represented are: 2 acres of Conifer-Northern Hardwood (2 acres suitable) which represents 0.4 percent of the Forest's total, 53 acres Dry and Dry-Mesic Oak-Pine (4 acres suitable) which represents 1.1 percent of the Forest's total, and 26 acres Dry Mesic Oak (22 acres suitable) which represents 0.09 percent of the Forest's total.

Tributaries to Peak Creek, within the roadless area boundary, are within the designated public water supply for the Town of Pulaski. The population served is approximately 10,000.

The sensitive plant, sword-leaved phlox, occurs within a portion of the area.

The two old homesites south of FDR 692 are becoming overgrown and beginning to blend in with the natural landscape.

Approximately 90 percent of the area is classified as having high existing scenic integrity.

The nearest existing wilderness to this roadless area is Kimberling Creek Wilderness, approximately 9.0 air miles to the northwest.

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#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Little Walker Mountain roadless area makes its preservation as potential wilderness practical. Most of the boundary follows property lines or roads. The boundary north and east of Tract Fork would be difficult to establish because the line is entirely on National Forest lands and would require a survey to formally establish the boundary. Although surrounding private lands contrast with the area, the effects are generally limited to the periphery along the boundary of the roadless area. Except along the eastern, southern, and southeastern boundaries where noises from the Town of Pulaski, Norfolk-Southern railway, and US military jet flyovers may become disturbing, the high peaks and deep valleys protect this roadless area somewhat from the sights and sounds of civilization. The high amount of illegal ATV traffic would likely continue being a law enforcement problem. The 4.39 miles of improved and unimproved roads receive a great deal of use, particularly during hunting season, and would be difficult returning them to a natural condition.

The northeastern corner of the roadless area boundary is adjacent to a short section of the planned AEP 765 kV powerline corridor. Sights and sounds associated with the powerline will be apparent from within that portion of the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service boundary lines and improved roads delineate most of the roadless area boundary. An offset from improved roads bounding the area would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the roads (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.) and the adjacent dispersed camping areas that are used during hunting season. An offset of 100 feet from the centerline of Forest Development Roads and 300 feet from VA roads is recommended. A 300 foot offset from the 765kV powerline corridor is recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Dispersed recreation activities such as hiking, hunting, fishing, mountain biking, horseback riding, and dispersed camping are the largest recreation attractions to the area. Illegal ATV use is also common to the area. Gatewood Reservoir, owned and operated by the Town of Pulaski, provides opportunities for water based recreation near the southern boundary of the roadless area. The Town of Pulaski is approximately 1.5 air miles from the southeastern boundary of the roadless area. Established recreation uses that would be discontinued should this area be designated a wilderness include: (1) mountain biking would be discontinued, and (2) legal 4X4 off-road riding over the jeep trail in the southeastern part of the area would cease.

#### WILDLIFE

The Little Walker Mountain roadless area provides habitat for a diversity of wildlife species. Featured species of the area are 90 percent turkey and 10 percent deer. If this area is designated a wilderness, maintenance of existing wildlife openings and the wildlife pond would be discontinued. Tract Fork and Peak Creek support wild trout. Tract Fork has a good macroinvertebrate monitoring score.

#### WATER AVAILABILITY AND USE

The roadless area encompasses the headwaters for a multitude of tributaries that feed Little Walker Creek, Panther Lick Hollow, Laurel Hollow, Tract Fork, Pondlick Branch,

Eddys Branch, and Peak Creek. There are no existing special use water permit authorizations in the area. Water quality is expected to remain at its current level whether or not the area is designated as wilderness. A portion of the roadless area is within the Peak Creek drainage, which is a primary component of the public water supply for the Town of Pulaski. Gatewood Reservoir is located approximately 3.5 air miles west of the town. There are no other known water storage needs in the area.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 36 percent of the area, or 3,498 acres, is classified as suitable for timber production. In the past 20 years, approximately 176 acres of timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 3,498 acres of suitable lands within this roadless area represents approximately 1.1 percent of all lands suitable for timber production on the Jefferson National Forest. Private subsurface minerals ownership is held on 1786 acres within this area. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of October 1999. The potential for energy minerals, primarily natural gas, is estimated to be low to moderate. This area was leased under a Federal oil and gas lease in the 1980's. No oil or gas wells were drilled and the Federal lease expired. The potential for other Federal leasable minerals, including metallic minerals, is estimated to be low.

### CULTURAL RESOURCES

Approximately 799 acres have been surveyed for cultural resources within the roadless area, as of March 1998, and one prehistoric hunting-transient camp has been documented. However, the area exhibits a moderate to high potential for additional prehistoric and historic resources.

### LAND USES

An authorized special use permit for a rain gauge is located north of VA 710 near Eddys Branch. If this area is designated as a wilderness, it is recommended that the rain gauge be authorized to remain at its current location to maintain the long-term integrity of rain data for the Virginia Office of Emergency and Energy Services. No other special use authorizations exist within the area. However; an existing 50 foot-wide natural gas pipeline right-of-way forms a 1.4 mile long boundary of the roadless area in the southeastern corner. The Forest has received a request for an additional 50 foot-wide right-of-way paralleling the existing line and the proposal is currently under evaluation.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands on the northern and eastern perimeters. Wilderness designation may limit options for containing fires on private and/or federal lands. The Little Walker Mountain roadless area is expected to be in the generally infested area for gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 83 percent of the area is composed of the Dry and Dry-Mesic Oak-Pine and Dry Mesic Oak ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

LITTLE WALKER MOUNTAIN

Portions of this roadless area are occupied by near pure stands of table mountain pine and/or pitch pine forest types. These pine-dominated stands occur primarily on southeast to southwest facing ridges and slopes with dry, well-drained soils. Table mountain pine has serotinous cones that usually require significant heat in the tree canopy from fire to open the cones, thus allowing for seed dispersal and regeneration. Other oak dominated forest types that contain a component of these pine species also occupy a large portion of this roadless area. If this area was designated wilderness, the use of management ignited prescribed fire to manipulate these fire dependent ecosystems for restoration and maintenance would likely not be allowed. This will result in further declines in acreage and the open structure of these forest types along with the flora and fauna these ecosystems support.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

LITTLE WILSON CREEK WILDERNESS ADDITION A ID NUMBER: 14401



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 78 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 78 |

### LOCATION, VICINITY, AND ACCESS

Little Wilson Creek Wilderness Addition A roadless area is located on the Jefferson National Forest, Mount Rogers National Recreation Area, Grayson County, Virginia. The area is bounded by Little Wilson Creek Wilderness to the north and west, non-wilderness National Forest land to the south, and private land to the east. The area is found within a portion of U.S.G.S. Virginia Quadrangle Troutdale. There is no major vehicular access to the area. A private road accesses the area from the south off of VA 817.

There are no roads or trails in the area.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Southern Blue Ridge Mountains Subsection of the Blue Ridge Mountains Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by tectonic uplifted mountain ranges composed of igneous and metamorphic rock, forming many high gradient, deeply incised streams. A tributary to Wilson Creek, Brier Run, flows southward through the roadless area. Elevation ranges from approximately 3180 feet along Brier Run near the southeast corner to 3950 feet near the northwest corner.

The roadless area contains 39 acres of grazing land called the Brier Run Pasture and 39 acres of forested land. The 39 acres of grazing land are found on the lower two-thirds of the area and consists of 23 acres of open pasture and 16 acres of woodland. The 39 acres of forest vegetation is mainly broadleaf deciduous species, intertwined with brushland, with a site index of 60, indicating moderate productivity for tree growth. White oak, northern red oak, hickory, chestnut oak and scarlet oak are the main tree species within the area.

### CURRENT USE

The main use of this land is for grazing. Grazing is authorized under an on-off grazing permit within the Fairwood Allotment. This permits cattle to graze back and forth between National Forest land and adjacent private lands. An environmental assessment analyzing the effects of grazing within the Fairwood Allotment was completed in 1998. The Decision Notice authorized the continued use of grazing.

Recreational use within the boundaries of this roadless area is very light. Any use would be dispersed recreation activities such as hunting.

All lands are classified unsuitable for timber production within the area. Inventory data indicate no privately owned, outstanding or reserved, mineral rights underlying Federal surface ownership.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The open lands within this area provide a pastoral setting. There are wire fences around the grazing lands that are visually evident and influence ecological processes, as a minimum, in the vicinity of the fences.

LITTLE WILSON CREEK WILDERNESS ADDITION A

Most of the area was cut over and frequently burned in the early 1900's. Most timber in the area is in the 21-100 year old class. The roadless area has no acres of possible inventoried old growth.

Featured species for the area is bear.

The roadless area is bounded by the heavily wooded Little Wilson Creek Wilderness to the north and west. Private lands to the east are a mix of woodlands, pastures, farms, and residences.

#### KEY ATTRACTIONS

Grazing is the primary use and main attraction of this small area. The area receives some hunting use in the fall. There are no known threatened, endangered, or sensitive species in this area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

The use of cattle in the area is preventing the open lands from returning to a wooded state. The open lands within this area would revert to forest if grazing were discontinued. This has been shown to occur in a nearby pasture, within Little Wilson Creek Wilderness, in which grazing was discontinued in the early 1990's.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

This roadless area is 78 acres in size and is located entirely on National Forest land. Elevations range from 3180 feet along Brier Run in the southeastern corner to 3950 feet in the northwest corner. The area is too small to have a solitude core area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The adjacent Little Wilson Creek Wilderness contains a large area of semi-primitive non-motorized ROS setting. This roadless area is classified as roaded natural. Visitor use to this area can be described as very light. Due to the small size, most of this area will be impacted by activities occurring on the adjacent private lands.

Much of the terrain in this roadless area is steep and rugged. The terrain is similar to the adjacent wilderness.

This roadless area does not present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Some hunting is present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

This roadless area is in the Southern Blue Ridge Subsection of the Blue Ridge Mountains ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 12,089 acres, on the Jefferson National Forest: Lewis Fork, Little Wilson Creek, and Little Dry Run. Within the Southern Appalachians, 19 wildernesses and 62 roadless areas are classified within this subsection.

Volcanic rocks, primarily rhyolite, are the dominant rock types. This area is located in the Mount Rogers volcanic center, where lava flows and ash falls blanketed the landscape hundreds of millions of years ago.

There are no designated Research Natural Areas or Experimental Forests within the

roadless area.

All forested lands within this area are in the Dry Mesic Oak ecological community type. There is no inventoried old growth in the area.

There are no known threatened, endangered, or sensitive species in this area.

The entire area is classified as having high existing scenic integrity.

The Little Wilson Creek Wilderness Addition A roadless area is adjacent to the Little Wilson Creek Wilderness. The nearest roadless area is Little Wilson Creek Wilderness Addition B, on the north side of the wilderness.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area, when combined with the existing Little Wilson Creek Wilderness, makes its preservation as potential wilderness practical. If this area became wilderness, this would increase the size of the existing Little Wilson Creek Wilderness from 3613 acres to 3670 acres. The northern and western boundaries of the roadless area adjoin Little Wilson Creek Wilderness. The eastern and southern boundaries adjoin private lands. There are no privately owned mineral rights underlying Federal surface ownership.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

The north and west boundary is adjacent to Little Wilson Creek Wilderness and would not need to be marked on the ground. The eastern and southern boundaries follow private property lines and would easily be located on the ground.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation facilities or any public roads or trails that access this area. The only way for the general public to access the area is to bushwhack through Little Wilson Creek Wilderness.

#### WILDLIFE

The featured species of the area is the same as the adjacent Little Wilson Creek Wilderness - bear. There are no known threatened, endangered, or sensitive species in this area.

#### WATER AVAILABILITY AND USE

Brier Run, a tributary to Big Wilson Creek, is a wild trout stream with a good macroinvertebrate monitoring score. Brier Run is used as a water source for cattle in the area. There are no other known water storage needs in the area. Water quality is expected to remain at its current level. If Brier Run is removed as a water source for cattle, water quality would be expected to improve over time.

#### LIVESTOCK, TIMBER, AND MINERALS

Livestock grazing is the predominant use of this area. Of the 78 acres in this area, 39 are classified as grazing land. The grazing is authorized under an on-off permit, which allows cattle to graze back and forth between National Forest to adjacent private land. The grazing is seasonal with cattle in the area mid-April to mid-October. Grazing would not be

LITTLE WILSON CREEK WILDERNESS ADDITION A

precluded by wilderness designation.

There are no acres of land classified as suitable for timber production. In the last 20 years, no timber has been harvested. Timber harvest and the associated production of wood products from this area would be precluded by wilderness designation. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of December 1999. The potential for energy minerals, primarily natural gas, is estimated to be low. The potential for other Federal leasable minerals, including metallic minerals, is also estimated to be low.

#### CULTURAL RESOURCES

As of March 1998, no cultural resource surveys have been conducted within this roadless area. The area exhibits a moderate potential for additional prehistoric and historic resources.

#### LAND USES

One special use permit authorization for grazing has been issued for 39 acres within this roadless area.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Managing the grazing lands may become more difficult if the area becomes wilderness. Projects such as fence repair, fertilizing, and stock tank construction would need to be done by non-mechanical means unless specifically approved in a wilderness resource management plan.

The small size of this area should not affect other management considerations in a major way. Fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands to the south and east. Wilderness designation may limit options for containing fires on private lands. This roadless area is expected to be in the generally infested area for gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed timber stands can be severe (up to 25-30%) following a first defoliation and oaks are the preferred hosts. The timber in this roadless area is composed of the Dry Mesic Oak ecological community types. Wilderness designation may make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other national forest or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

LITTLE WILSON CREEK WILDERNESS ADDITION B ID NUMBER: 14402



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 1,724 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 1,724 |

### LOCATION, VICINITY, AND ACCESS

Little Wilson Creek Wilderness Addition B roadless area is located on the Jefferson National Forest, Mount Rogers National Recreation Area, Grayson County, Virginia. The area is surrounded by National Forest lands except for a small section in the northeastern corner. The area is bounded by the Crest Zone grazing allotment and Forest Development Road (FDR) 613 (Pine Mountain Road) to the west, Little Wilson Creek Wilderness to the south, grazing lands and general forest land to the east, and grazing lands to the north. The area is found within a portion of U.S.G.S. Virginia Quadrangle Troutdale. Vehicular access is provided by FDR 613 along the northwestern boundary and VA 739 near the northeastern corner of the area. FDR 4104, a rough 4-wheel drive road, also accesses the southeastern corner.

An old, rough access road, not on the Forest's transportation system, is used to access the Solomon Branch grazing pasture. The road is approximately 0.5 miles long and begins on private land at the terminus of VA 739 in the northeastern corner of the area.

There are no improved or unimproved improved roads in the area.

Five Forest Development Trails (FDT) access the area. Approximately 1.0 mile of the First Peak Trail (FDT 4524) runs through the southern portion of the area and provides access into Little Wilson Creek Wilderness. The Third Peak Trail (FDT 4521) intersects FDT 4524 and runs down the western section of the area for 1.6 miles. The Switchback Trail (FDT 4520) begins and ends on FDR 613 and runs through the northwestern portion of the area for 1.0 miles. The Solomon Branch Trail (FDT 4626) begins on VA 739 near the northeastern corner of the area and goes 1.2 miles through the area before intersecting with FDT 4521. The Shapiro Trail (FDT 4608) goes through approximately 0.8 miles of the area in the southeastern corner and accesses Little Wilson Creek Wilderness. All trails are open to horseback riders and hikers. Total trail mileage is 5.6 miles

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Southern Blue Ridge Mountains Subsection of the Blue Ridge Mountains Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by tectonic uplifted mountain ranges composed of igneous and metamorphic rock, forming many high gradient, deeply incised streams. Included in this area is Third Peak, the dominant peak in this roadless area. Solomon Branch runs through the middle of this area before flowing into Fox Creek, approximately one mile north of the roadless area. Elevation ranges from approximately 3400 feet near the northern end to 4950 feet at the crest of Third Peak near the southern boundary.

Vegetation is mainly hardwood deciduous species with some red spruce at the highest elevations. Approximately 83 percent of the area has a site index of 70 indicating moderate to high productivity for tree growth. This roadless area has mostly a northern and eastern aspect with cool and wet colluvial drainages. Here yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. Above 4400, feet on Third Peak, is a conifer/northern hardwood forest community. Here American beech, yellow birch, sugar maple, mountain maple, striped maple, and red spruce dominate the forest. The remaining 17 percent of the area has a site index of 60 indicating a moderate to low productivity for tree growth.

LITTLE WILSON CREEK WILDERNESS ADDITION B

### CURRENT USE

The area is used primarily for dispersed recreation activities such as horseback riding, hiking and hunting. The operator of the Fairwood Livery uses many of these trails when leading guided horseback trips. Trail access is available on FDR 613 along the western boundary, Shapiro Trail parking lot on VA 739 near the eastern boundary, and FDR 4103 along the southeastern boundary.

Portions of three grazing pastures are within this roadless area. All three pastures are within the Fairwood Grazing Allotment. The Young Tract grazing pasture is partially in the northern portion of this area. This grazing area is 55 acres in size of which 22 acres are open and 33 acres are woodland. The 33 acres of woodland are within the roadless area. These woodlands are not used by the cattle and when the fence is rebuilt in the future, it will be moved to the field/woodland edge and the entire Young Tract will be outside this roadless area. The Solomon Branch grazing pasture is 63 acres in size of which 19 acres are open, 17 acres are brush, and 27 acres are woodland. All 63 acres are within the roadless area in the northeastern corner. A fenceline encircles the grazing area and an old woods road runs through the tract. The Solomon Branch grazing permit is an on-off permit which permits cattle to graze back and forth between National Forest land and adjacent private lands. The Shapiro Tract grazing pasture is 169 acres in size of which 118 are open and 51 acres are woodland. Approximately 20 acres of this grazing area is located in the eastern section of the roadless area. A fenceline also encircles the grazing land within this tract. Adjusting the roadless area boundary from FDR 4103 to the fenceline would remove all of the Shapiro Tract grazing land from this area.

The portion of these grazing lands that are open are mechanically mowed every few years to keep briers and weeds to a minimum. Use of these grazing lands are authorized under a special use permit. An environmental assessment was completed for the Fairwood Grazing Allotment in 1998. The Decision Notice for the environmental assessment authorized the continued use of grazing.

The entire area is classified unsuitable for timber production. Inventory data indicate 267 acres of privately owned, outstanding or reserved, mineral rights underlying Federal surface ownership.

There is a two-plot cemetery along Solomon Branch Trail, approximately 0.5 miles from VA 739.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 5.6 miles of maintained trail and 0.5 miles of old road in the roadless area are visually evident and influences ecological processes, as a minimum, in the vicinity of the trails and old road. The 63 acre Solomon Branch grazing pasture is entirely within the roadless area and 19 acres are maintained in an open state through grazing and mowing. There are wire fences encircling this grazing pasture that are visually evident.

There are three private land inholdings just outside the eastern boundary of the roadless area. Each private inholding has a structure on it. One is a trailer, one a rustic hunting cabin, and one a house.

Most of the area was cut over and frequently burned in the early 1900's. The Pine Mountain Road (FDR 613) near the western boundary of the area was the mainline railroad grade for hauling timber out of the High Country. All timber in the area is in the 21-100 year old age class. The roadless area has 40 acres of possible inventoried old growth.

Featured species for the area is primarily bear. Approximately 242 acres at the southern end of the area is featured for grouse. The area contains no wildlife openings or other habitat improvements.

The area is surrounded by National Forest land except for a small section of the northeast corner that adjoins private property. There are also three small private land inholdings just outside the eastern boundary. To the north is the Livery East grazing pasture, Young Tract grazing pasture, and private land. To the east is the Shapiro Tract grazing pasture and general forest land. To the south is Little Wilson Creek Wilderness. To the west is FDR 613 and the Scales grazing pasture and the open lands known as the Crest Zone.

#### KEY ATTRACTIONS

The five trails in the area are very popular with horseback riders and hikers. The Fairwood Livery operator uses many of these trails for guided trail rides. There is a 40 foot waterfall on Solomon Branch. There is no maintained trail to the falls, yet some people do hike up to see it. Activities associated with hunting are also popular in this area. Many hunters camp along FDR 613 near the western boundary of this area. Hunters also drive up FDR 4104 to the southeastern boundary of this area. This road also accesses a small private inholding that has a hunting cabin on it.

Approximately 200 acres of this roadless area are within the Little Wilson Creek Headwaters Special Biological Area. Two rare plants and one rare animal have been documented within this roadless area.. Blue Ridge St. John's-wort and long-stalked holly are found within the area and are sensitive species. The locally rare hermit thrush is very common and demonstrably secure globally, though it may be rare in parts of its range, especially at the periphery. In Virginia, this bird is listed as extremely rare by the Virginia Division of Natural Heritage.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the Little Wilson Creek Wilderness Addition B roadless area appears to be natural but there are signs of recent disturbance. Cattle grazing and mowing are preventing the open lands from returning to a wooded state. There are 5.6 miles of maintained trail and 0.5 miles of an old woods road within the roadless area. These trails and old road influence ecological processes, as a minimum, in the vicinity of the trails and road. Some old access and logging roads and trails in this roadless area have become overgrown and impassable, causing minimal impact on the area's natural ecological processes.

There are no maintained wildlife openings or other habitat improvements within the area.

No timber harvesting has occurred within this roadless area in the last 20 years.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

This roadless area is 1724 acres in size and is located entirely on National Forest land. The area is a proposed addition to the 3613 acre Little Wilson Creek Wilderness. Elevation ranges from approximately 3400 feet near the northern end to 4950 feet at the crest of Third Peak, near the southern boundary. A solitude core area of 764 acres exists in the southern portion of the area adjacent to Little Wilson Creek Wilderness. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The northern area near roads is classified as roaded natural. The ratio of core acres of solitude to the roadless area is approximately 44 percent. Visitor

LITTLE WILSON CREEK WILDERNESS ADDITION B

use to this area can be described as moderate to heavy from spring through fall. After hunting season, use is light until spring when visitors return to the area.

The visitor can expect to encounter other visitors along most of these trails during spring, summer, and fall. The further away one gets from developed trails, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance away from trails.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

This roadless area does present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as horseback riding, hiking, hunting, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

This roadless area is in the Southern Blue Ridge Subsection of the Blue Ridge Mountains ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 12,089 acres, on the Jefferson National Forest: Lewis Fork, Little Wilson Creek, and Little Dry Run. Within the Southern Appalachians, 19 wildernesses and 62 roadless areas are classified within this subsection.

Volcanic rock, rhyolite, is the dominate rock type. The roadless area is located in the Mount Rogers volcanic center, where lava flows and ash falls blanketed the landscape hundreds of millions of years ago. The higher elevations within the area exhibit frigid soil temperatures and are associated with shorter growing seasons and northern hardwood/ spruce and plant communities.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. Approximately 200 acres of this roadless area is in the Little Wilson Creek Headwaters Special Biological Area. This 464 acre biological area includes the headwaters of the westernmost fork of Little Wilson Creek. These headwaters include acidic springs, sphagnous seeps, and braided streams. Vegetation in the wetland areas is primarily endemic and includes such unusual species as finely-nerved sedge, three-seed sedge, and Michaux bluet. Long sedge, a species normally associated with the coastal plain, was observed in this area.

Approximately 60 percent of the area is in the Northern Hardwood ecological community type. Another 21 percent is in the Conifer/Northern Hardwood type, and 18 percent is in the Dry Mesic Oak type.

There are no acres of possible inventoried old growth in the area.

Several sensitive plant species, Blue Ridge St. John's-wort, long-stalked holly and a locally rare bird species, the hermit thrush, have been documented as occurring within the roadless area (see 1.i.).

The entire area is classified as having high existing scenic integrity.

The Little Wilson Creek Wilderness Addition B roadless area is adjacent to the Little Wilson Creek Wilderness. The nearest roadless area is Lewis Fork Wilderness Addition, located west of FDR 613.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area, when combined with the existing Little Wilson Creek Wilderness, makes its preservation as potential wilderness practical. If this area becomes designated wilderness, this would increase the size of the existing Little Wilson Creek Wilderness from 3613 acres to 5336 acres. Most of the boundary follows the Little Wilson Creek Wilderness boundary, grazing pasture fences, FDR 613, or private land. However, there are two areas where the boundary follows no discernible feature. Surrounding lands are nearly all National Forest. There are 267 acres of privately owned mineral rights within the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows features such as a wilderness boundary, road, or grazing fence. There are two areas; however, where the boundary follows no discernible feature and will be difficult to locate on the ground. There is approximately 2000 feet in the northeast corner that follows no features. This section connects VA 739 and FDR 4103. There is approximately 3000 feet in the southeastern corner that follows no features. This section connects FDR 4103 and FDR 4104.

There is also an area where the boundary needs to be adjusted to remove a portion of the Shapiro Tract grazing pasture from the roadless area. The eastern boundary follows FDR 4103 instead of the fenceline, which is approximately 500 feet to the west. Utilizing the fenceline instead of FDR 4103 is recommended. Follow the fence to the south until intersecting the Shapiro Trail. This would delete approximately 20 acres from the roadless area.

An offset from VA 739 and FDR 613, bounding the area, would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road and trail (brush clearing, grading, culvert installation and cleaning, gravel placement, alignment, etc.). An offset of 100 feet from the centerline of VA 739 and FDR 613 is recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

Dispersed recreation activities such as horseback riding, hiking, hunting, and dispersed camping are the largest recreation attractions to the area. The operator of the Fairwood Livery takes clients on guided horseback rides on many of the trails within this roadless area. No impacts to established, legal recreation uses would be expected should this area be designated as wilderness.

#### WILDLIFE

The Little Wilson Creek Wilderness Addition B roadless area provides habitat for a diversity of wildlife species. There are no wildlife habitat improvement projects within the area. Featured species is primarily bear, with a small area also featuring grouse. The hermit thrush, globally common but found extremely rarely in Virginia, has been documented as occurring in this area.

#### WATER AVAILABILITY AND USE

Solomon Branch, a tributary to Fox Creek, is a wild trout stream with a good macroinvertebrate monitoring score and good water chemistry. Solomon Branch drains most of the roadless area. The area also contains the headwaters of Little Wilson Creek. There are no existing special use water permit authorizations in effect as of March 2000. There are no known water storage needs within the area. Water quality is expected to

LITTLE WILSON CREEK WILDERNESS ADDITION B

remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

The Solomon Branch grazing pasture is entirely within this roadless area. Four grazing allotments are located just outside the roadless area boundary. The Scales pasture, a part of the Crest Zone Allotment, is just west of the area. The Livery East pasture and Young Tract pasture, parts of the Fairwood Allotment, are just north of the roadless area. The Shapiro Tract pasture, a part of the Fairwood Allotment, is just east of the area. All lands are classified as unsuitable for timber production. No timber has been harvested in this roadless area in the past 20 years. Timber harvest and the associated production of wood products from this area would be precluded by wilderness designation. Private subsurface minerals ownership is held on 267 acres within this area. No Federal oil and gas leases or other Federal leases are in effect in this area as of December 1999. The potential for energy minerals, primarily natural gas, is estimated to be low. The potential for other Federal leasable minerals, including metallic minerals, is also estimated to be low.

#### CULTURAL RESOURCES

As of March 1998, approximately 22 acres of this roadless area has been surveyed for cultural resources. One known prehistoric base camp/reduction station has been identified. Four additional prehistoric sites have been located but further work is needed to classify the site types. The area exhibits a moderate potential for additional prehistoric and historic resources.

#### LAND USES

Portions of three grazing areas are found within this roadless area. The Young pasture, Solomon Branch pasture, and Shapiro pasture are authorized under special use permits. All three of these grazing areas are within the Fairwood Allotment. No other special use authorizations have issued for land uses in this roadless area.

The Mount Rogers Final Management Plan of 1980 described a ski area that would be built in this area. The slopes and lifts would be constructed on the north side of Third Peak. A ski area conceptual design was produced but the plan was dropped due to intense local public opposition.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Managing the grazing lands may become more difficult if the area becomes wilderness. Projects such as fence repair, fertilizing, mowing, and stock tank construction would need to be done by non-mechanical means unless specifically approved in a wilderness resource management plan.

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. Wilderness designation may limit options for containing fires on private and/or federal lands. Little Wilson Creek Wilderness Addition B roadless area is expected to be in the generally infested area for gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed timber stands can be severe (up to 25-30%) following a first defoliation and oaks are the preferred hosts. This area, however, has a small population of oaks with approximately 18 percent of the area composed of the Dry Mesic Oak ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the

chances that they may spread to other national forest or private land.



**Need**

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**LONDON BRIDGE BRANCH**

LONDON BRIDGE BRANCH ID NUMBER: 04015

## Overview

* Cherokee National Forest - 3,431 acres, Jefferson National Forest - 853 acres

| Surface Ownership | Acres |
|---|---|
| Forest Service | 4,284 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 4,284 |

### LOCATION AND VICINITY

London Bridge Branch roadless area is located on the Cherokee National Forest, Watauga Ranger District, Johnson County, Tennessee and the Jefferson National Forest, Mount Rogers National Recreation Area, Washington County, Virginia. The area is generally bounded by private land, Virginia Highway 716 & Tennessee Highway 133 to the west and north, Tennessee Highway 91 and a telephone line to the east and Sutherland Trail Road (FDR 322), ridge and hollows to the south on the Cherokee National Forest. The area is found within U.S.G.S. Tennessee Quadrangle Laurel Bloomery. Major vehicle access is provided by Highway 91 to the east. There are two improved roads within the roadless area (FDR 49030 -. 34 mile and FDR 60111 -. 88 mile). The Iron Mountain Trail (FDT 54-301) bisects the area in half.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

This area lies in the Central Appalachian Forest-Meadow province of the Southern Appalachian Mountains. Landform consists of mountain peaks and ranges separated by intermountain basins. London Bridge Branch is a mountain ridge (Iron Mountain) divided by a series of small, steep sideslope drains.

Elevation ranges approximately from 2000' at the drains to 3600' on the ridgetop along the Iron Mountain Trail. Soils are Dystrochrepts, Kanhapludults, and Hapluduts with mixed kaolinitic and micaceous mineralogy with mesic temperature and udic moisture regimes. Vegetation is mainly composed of broadleaf deciduous species (white and scarlet oaks) with mixed mesophytic species and yellow poplar at low elevations, with pitch pine on drier and disturbed sites, and chestnut oak and northern red oak at moderate elevations. This area has been further classified as being in the Southern Blue Ridge Mountains subsection of the Blue Ridge Mountains section ecological unit classification.

### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting and hiking. There are three wildlife openings within the area that total 1.5 acres (each approximately. 5 acre in size) and FDR 6011 is utilized as a linear wildlife opening (3.5 acres).

### APPEARANCE OF THE AREA AND SURROUNDING CHARACTERISTICS OF CONTIGUOUS AREAS

Recent timber sales (61 acres), the three wildlife openings (1.5 acres) and 1.22 miles of improved system road located in the roadless area contrast with their immediate surrounding characteristics, although the majority of the area has a natural appearance. Although most of the area was timbered in the past, few obvious signs remain and those are disappearing into forest growth.

The state highways, telephone line, and private land along the eastern, western and northern boundaries contrast dramatically with the roadless area.

#### KEY ATTRACTIONS

Those acres identified on the Jefferson National Forest are part of the Mount Rogers National Recreation Area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. London Bridge Branch roadless area appears to be natural but there are signs of recent disturbance. There are 61 acres of 0-10 age classes (less than 2% of the area) and three maintained wildlife openings (1.5 acres) within this roadless area. There are 1.22 miles of maintained improved road within the area and 6.1 miles of maintained trail.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

London Bridge Branch Roadless area is 4,229 acres in size and is located entirely on National Forest land. London Bridge Branch is a mountain ridge divided by series of steep sideslope drains. Elevation ranges from 2000' at the drains to 3600' along the ridge crest. A solitude core area of 2,759 acres exists in a center block that generally follows the roadless area boundary as well as a small disjointed area in the southeast corner of the roadless area.

The relationship of core acres of solitude to the roadless area is approximately 65 percent. There are two improved roads (1.22 total miles) located within the roadless area. There is one trail within the roadless area (6.1 miles). Visitor use for the most part is light with small group sizes. Visitors feel like that they are in a unconfined, natural area. Noise from the surrounding lands can be heard along the periphery of the roadless area. Noise impacts and the reduced feeling of solitude and isolation are also felt when the improved road within the area is being used for Forest Service activities. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from the improved road and trails. Within the area, there are some vestiges of isolated, scattered pockets of forest primeval but there is a degree of evidence of human impact. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

London Bridge Branch roadless area does present a range of dispersed recreational activities of which are typically found on the Cherokee National Forest as a whole. Activities such as hiking, hunting, fishing, and primitive camping, are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

London Bridge Branch is in the Southern Blue Ridge Mountain subsection of the Blue Ridge Mountain ecosystem section (4,229 acres). This ecosystem subsection and section is represented by the following wildernesses on the Cherokee National Forest: Big Laurel Branch, Pond Mountain, and Unaka Mountain (17,757 acres).

London Bridge Branch roadless area contains a diversity of geologic features that are typical of the Southern Appalachian Mountains that draw people to the area to experience the scenic views. Geologic rock types of this area consist of the Erwin Formation (White, vitreous quartzite, massive, with interbeds of dark-green silty and sandy shale, minor siltstones and very fine sandstone); Hampton Formation (Dark greenish-gray, silty and sandy shale, micaceous shale; numerous layers of medium-grained, feldspathic, thinly bedded sandstone); Unicoi Formation (Sequence of gray feldspathic sandstone, arkose,

LONDON BRIDGE BRANCH

conglomerate, graywacke, siltstone and shale; greenish amygdaloidal basalt flows) and Shady Dolomite (Light-gray, well-bedded dolomite with thin-to medium-bedded gray limestone; yellowish-brown residual clays with "jasperoid" diagnostic). There are no designated Research Natural Areas or Experimental Forests with the roadless area. There are no known unique vegetation communities that retain any attributes that have the potential to significantly contribute to any scientific or educational value at this time.

Approximately 34% of the area is in the Mixed Mesophytic ecological community type. Another 30% is in the Dry and Xeric Oak type, 22% in the Dry and Dry-Mesic Oak-pine type, and the remaining in miscellaneous types. Possible old growth is present on approximately 123 acres (17 acres of Mixed Mesophytic forest which represents approximately 1% of this forest community type on the national forest; 71 acres of Xeric Pine and Pine-Oak which represents 4% of this forest community type on the national forest; 21 acres of Dry and Xeric Oak which represents less than 1% of this forest community type on the national forest; and 16 acres of Dry and Dry Mesic Oak-Pine which represents less than 1% of this forest community type on the national forest).

These acres are within the unsuitable land base. Possible old growth makes up approximately three percent of the roadless area. Approximately 3,189 acres (93%) is in the late successional forest type class. The remaining acres are scattered throughout the remaining successional classes.

The following streams contain trout populations in this roadless area (all trout species are considered significant on the Cherokee National Forest with brook trout considered a native species): Laurel Creek (brown trout, rainbow trout) and Lyons Branch (rainbow trout).

#### SIZE, SHAPE, AND MANAGEABILITY

As described previously, the size and shape of London Bridge Branch roadless area makes its preservation as potential wilderness practical. The boundary follows topographic features, property boundary lines, and human improvements such as roads. Although surrounding lands contrast dramatically with the area, the effects are limited to the periphery along the boundary of the roadless area and as such, any activity that does occur would not dominate the user's wilderness experience. High ridges and distance are more likely to limit the sights and sounds of civilization than the actual boundaries. The private lands near the western, northern, and southeastern boundaries do have the potential to impact wilderness attributes but the surrounding steep ridges and side drains will buffer the magnitude of the potential impacts.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

The boundary follows obvious human made features such as roads and property line boundaries as well as natural features such as ridges and drains. A offset from the boundary roads such as Highway 176 and 133 would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, road alignment, etc.). A offset of approximately 300 feet from the centerline of existing roads is recommended. In addition, the boundary along the east side of the roadless area meanders between Highway 91, phone line right of way, and a utility line.

The boundary needs to be offset 300 feet from these improvements where they form the roadless area boundary. Areas to be excluded from the roadless area include the old CCC house and associated out buildings on the Jefferson National Forest and Camp Ahistadi (organization camp) along Highway 91.

## Wilderness Availability



### RECREATION, INCLUDING TOURISM

There are no developed recreation sites or potential National Recreation Survey Sites in this roadless area. A hiking trail bisects the area (see Overview). Those acres identified on the Jefferson National Forest are part of the Mount Rogers National Recreation Area.

### WILDLIFE

Fishery management activities are related to monitoring the known trout populations (identified in Section 2d), surveying additional streams (Reservoir Branch and London Bridge Branch) for trout populations, and the periodic removal of competing trout and other fish from brook trout streams.

### WATER AVAILABILITY AND USE

The western two-thirds of this roadless area contains the headwaters of several small streams, which drain into Beaverdam Creek. The eastern third of this roadless area contains the headwaters of several small streams, which drain into Laurel Creek. Both of these larger streams are tributaries of the South Fork Holston River. There are no known water storage needs or any existing special use water permits. Water quality should remain at its current level whether or not the area is designated wilderness. Mitigation measures for ground-disturbing activities in non-wilderness areas should minimize adverse impacts on water quality. Ground disturbing activities in wilderness are held to a minimum.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations.

Nearly 28 percent or 1,167 acres of the London Bridge Branch roadless area is classified as suitable for timber production. In the last 10 years, approximately 61 acres of timber have been harvested. Timber harvest and the associated production of wood products from this area would be precluded by wilderness designation. This amounts to less than 1 percent of the lands suitable for timber production on the Cherokee National Forest.

Hard rock mineral production potential is low and unlikely at this time. Except for Tract U-436 (13 acres of outstanding mineral rights), all mineral rights are in federal ownership. No oil and gas leases have been issued within the roadless area. The potential discovery of these natural resources in this roadless area is low and unlikely.

### CULTURAL RESOURCES

There are no recorded cultural resource sites potentially eligible for listing in the National Register of Historic Places.

### LAND USES

No special use permits have been issued for lands in the area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

No private land would be affected if the area was designated as wilderness. Present fire control techniques are not expected to be impacted substantially if the area became designated wilderness. Since 1985, no recorded wildfires have occurred within the area.

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There are 1,387 acres of oak decline damaged stands and 216 acres of oak host type ranked as vulnerable. Without active management, the trend would be to see more vulnerable stands affected by oak decline and mortality rates to increase with time. However, the acres within the suitable land base (which relates to active management) are 181 acres of oak declined damaged stands and 151 acres of oak host type ranked as vulnerable.

There are a total of 126 acres of southern yellow pine types greater than 70 years of age at a moderate to high risk of southern pine beetle attack. No additional acres will be at a moderate to high risk within the next ten years. However, these 126 acres are not within the suitable land base.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

LONG SPUR ROADLESS AREA ID NUMBER: 14608



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 5,995 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 5,995 |

### LOCATION, VICINITY, AND ACCESS

The Long Spur roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Bland County, Virginia. The area is located approximately 0.8 miles east of Interstate 77 and 3.25 miles south of the town of Bland. In general, the majority of the area lies in a narrow band approximately 8 miles long in an east-west direction on the southside of Big Walker Mountain and is found within portions of the U.S.G.S. Virginia Quadrangles Bland and Long Spur. The area is approached by several VA routes and Forest Development Roads (FDR). VA 601 and FDR's 1023 and 6661 provide access from the south. VA 602 provides access from the east.

Utility line corridors provide a well defined boundary for the area on the eastern and western ends. Big Walker Mountain, and a mix of private land, define the northern boundary of the area. The southern boundary is a combination of VA 601, FDR 1023, FDR 6661, and National Forest/private property line boundaries.

The northeastern boundary was adjusted with the AEP 765 kV Transmission Line decision (12/20/02) with the new boundary following the powerline corridor. The utility corridor effectively split off a portion of the roadless area on the northeast corner and this area was dropped from the roadless area. The roadless area was acreage has been reduced by 416 acres.

There are no improved roads within the area.

There are three unimproved roads within the area. FDR 6070 enters the area from VA 602 after crossing the powerline corridor in the northeast corner of the roadless area and runs 2.0 miles north until exiting the area at the extreme northeast corner. Approximately 0.83 miles of this road are within the roadless area boundary. This road has been seeded but receives traffic from a special use permittee to access an earthquake monitoring system just outside the roadless area near High Rock. FDR 205 enters the area from FDR 1023 and winds its way approximately 3.0 miles north to the crest of Big Walker Mountain where it exits the area. This road is part of an old turnpike network connecting Bland with Wytheville. The road is accessible to 4-wheel drive vehicles but receives considerable illegal ATV traffic coming from the northside of Big Walker Mountain. FDR 206 intersects with FDR 205 on the crest of Big Walker Mountain and runs westward along the top of the mountain following an abandoned Appalachian National Scenic Trail location for 1.7 miles before exiting the area. The road continues westward until terminating near the Walker Mountain Lookout along VA 52 in Wythe County. Total unimproved road mileage is 5.53 miles.

There are no maintained forest development trails within the area. However, the abandoned Appalachian National Scenic Trail section along Big Walker Mountain still receives use, primarily by hunters. Another foot path breaks off from the old Appalachian National Scenic Trail on Big Walker Mountain and parallels Spur Branch until it intersects with VA 602. There is evidence of many other old trails, access, and logging roads in this roadless area, but most are being reclaimed by natural processes and are impassable to vehicular traffic.

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### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Long Spur roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/ southwest trending ridges of sandstone and shale with parallel drainages interspersed with broad limestone and shale valleys. Included in this area are Big Walker Mountain and Long Spur. Slopes vary from very steep on sideslopes to gentle along Little Walker Creek. Drainage density is generally high throughout the area and drainages are generally narrow and deep with steep sideslopes, especially where elevations are below 3000 feet. The area includes several significant karst areas. The area contains a multitude of tributaries that feed Little Walker Creek, a major stream that parallels VA 601 just outside the southern boundary of the roadless area. Another significant drainage is Spur Branch, located in the northeast section of the area. Elevations range from approximately 2360 feet along Little Walker Creek to 4017 feet at a point along the crest of Big Walker Mountain.

The roadless area is forested by eastern deciduous and coniferous species. Approximately 22 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, white pine, and red maple dominate the overstory. The remaining 78 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

### CURRENT USE

The area is primarily used for recreational activities such as hunting, dispersed camping associated with hunting, 4X4 riding on FDR 205, and some fishing in Spur Branch, a wild trout stream. Use of this fishery is limited due to poor public access. Mountain bike riders have been discovering the area's old roads and informal trails in recent years and involvement in this recreation activity is increasing. Illegal ATV use is also popular along FDR's 1023, 205, and 206. Approximately 38 percent, or 2,407 acres, of the area are classified as suitable for timber production. A portion of the 'Beast of the East', a 300 mile endurance race involving canoeing, hiking, and mountain biking, was run through a portion of the roadless area in June 1998 and again in May 1999. Hiking and mountain biking were featured through this area. Inventory data indicate no privately owned, outstanding or reserved, mineral rights underlying Federal surface ownership.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 5.53 miles of unimproved road in the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads. Old access and logging roads and informal trails still exist and are evident but some are becoming overgrown and regaining a more natural appearance while others are kept open by illegal ATV use and mountain bike riders.

Most of the area was cut over and frequently burned in the late 1800's and early 1900's. Approximately 60 percent of the timber is in the 21-100 year old age class, 32 percent is in the 101 plus years class, one percent in the 0-10 year class, and one percent in the 11-20 year class. The area has 1037 acres of possible inventoried old growth.

The roadless area contains approximately 11 acres of wildlife openings and two miles of recently seeded roads. The openings are currently kept open through regular mowing. Five

artificial waterholes have been created for wildlife use by blasting into rock. One waterhole is located at the top of Spur Branch near the roadless area boundary. Another is located along the northeast corner of FDR Road 6661, just inside the boundary. Three others are also located at strategic points within the roadless area boundary. While these waterholes may disturb the natural ecological processes of the area, they enhance wildlife populations and are gaining an increasingly natural appearance over time.

The area is bounded by private land to the north, National Forest land to the west, and a mix of National Forest and private land to the east and south. Private land to the south and east is generally a mix of farmland, woodland, residences, and outbuildings associated with farming activities. Private land to the north is characterized by steep, rugged, and tree lined terrain.

The northeastern corner of the roadless area boundary is adjacent to the planned AEP 765 kV powerline right-of-way. One new 765 kV powerline tower will be visible from within the roadless area and sights and sounds associated with the powerline will be apparent from within that portion of the roadless area.

The Interstate 77 corridor is located approximately 0.8 miles from the western boundary of the roadless area.

#### KEY ATTRACTIONS

The area is very popular with hunters and is becoming increasingly popular with mountain bikers and 4X4 enthusiasts. Spur Branch is a wild trout stream and receives a low amount of use due to the limited access to this area. High Rock, just outside the northeastern boundary, is a unique area for viewing scenery. There are large rock cliffs, which overlook the Walker Creek valley. The view is primarily of farmland along VA 608 and VA 604.

The area contains several significant karst areas. No Federally threatened, endangered, or sensitive species are known to occur within the roadless area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is somewhat affected by outside forces. Much of the Little Walker Mountain roadless area appears to be natural but there are signs of disturbance. The unimproved road, several miles of old access and logging roads, and informal trails within the area are visually evident. If this roadless area becomes wilderness, the unimproved road would be in wilderness and removed from the Forest's transportation system. Many of the old roads and trails in this roadless area have become overgrown and impassable, causing minimal impact on the area's natural ecological processes. Others are kept open by illegal ATV traffic and mountain bike riders.

While the maintenance of wildlife openings and artificial wildlife waterholes has affected natural ecological processes in the area, the range of influence is limited in extent. There are 72 acres of 0-10 year old age class within this roadless area.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Long Spur roadless area is 5,995 acres in size and is located entirely on National Forest land. The area is linear in shape, extending approximately eight miles east to west and averages about 1.5 miles north to south. Landform generally consists of the south side of Big Walker Mountain downslope to Little Walker Creek. Elevations range from approximately 2360 feet along Little Walker Creek to 4017 feet at a point along the crest of Big Walker Mountain. A solitude core area of 3,553 acres exists in the northcentral and

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eastern portions of the roadless area, of which 147 acres are Semi-Primitive Motorized and 3,406 acres are Semi-Primitive Non-Motorized. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximately 55 percent. Visitor use to the area can be described as moderate during hunting season and low to moderate the rest of the year. The further away one gets from unimproved roads and informal trails, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance away from the roads and trails. However, some areas will be impacted by noises associated with traffic on improved and unimproved roads around the periphery of the roadless area. Activities associated with private land around the periphery of the area may be observed or heard from various locations within the roadless area. Noises associated with Interstate 77 may be disturbing in some locations in the eastern end of the area.

The northeastern corner of the roadless area boundary is adjacent to the planned AEP 765 kV powerline corridor. One new large tower will be visible from within this portion of the roadless area. Sights and sounds from the line and from occasional maintenance activities will be apparent to visitors in proximity to the corridor.

One new large tower will be visible from within the roadless area and may create negative visual impacts, particularly to AT users. Sights and sounds from the line and from occasional maintenance activities will be apparent to visitors in that portion of the area.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Long Spur roadless area does present a range of recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, fishing, 4X4 riding, mountain biking, hiking, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Long Spur roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (6,413 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridgetops while shale is found on the lower slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area's relief and highly dissected topography creates a wide range of ecological types from hot, dry windswept ridges to cool, moist protected coves, to rich, wet bottomlands. The variety of ecotypes provides a variety of wildlife habitat. Apart from FDR's 1023 and 205 along the southern boundary, access to the area is mostly limited to foot and mountain bike traffic along FDR's 6661, and 6070.

The majority of the area, approximately 62 percent, is in the Dry Mesic Oak ecological community type. Twenty-nine percent is in the Dry and Dry-Mesic Oak-Pine type, four

percent is in the Xeric Pine and Pine-Oak type, three percent in the Mixed and Western Mesophytic type, and the remainder is in miscellaneous minor types.

There are 1,037 acres of inventoried possible old growth. The ecological community types represented are: 338 acres Dry and Dry-Mesic Oak-Pine (132 acres suitable) which represents seven percent of the Forest's total, 608 acres Dry Mesic Oak (276 acres suitable) which represents 2.2 percent of the Forest's total, 73 acres Mixed and Western Mesophytic (0 acres suitable) which represents two percent of the Forest's total, and 12 acres Xeric Pine and Pine-Oak (6 acres suitable) which represents 1.3 percent of the Forest's total.

Spur Branch supports a wild trout population.

There are no Federally threatened, endangered, or sensitive species known to occur within the area. However, box huckleberry, a locally rare plant species, is known to occur just outside the roadless area boundary.. The species requires fire disturbance to reproduce and proliferate.

Approximately 68 percent of the area is classified as having high existing scenic integrity.

The nearest existing wilderness to this roadless area is Kimberling Creek Wilderness, approximately five air miles to the north.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Long Spur roadless area makes its preservation as potential wilderness practical. Nearly all of the boundary follows property lines, roads, or utility corridors. Although surrounding private lands contrast somewhat with the area, the effects are generally limited to the periphery along the boundary of the roadless area. The most significant effects, in terms of sights and/or sounds would be from the section of AEP 765kV powerline passing along the northeast boundary and from Interstate 77 on the western end of the area. One new 765 kV powerline tower will be visible from within the roadless area in the northwest portion and sights and sounds associated with the powerline will be apparent from within that portion of the roadless area.

Unimproved FDR 205 has a long history of use as a turnpike and closing this road to traffic, should the area be designated wilderness, may be unpopular in the local area. The area adjacent to Turkey Gap, where FDR's 205, 206, and the abandoned Appalachian National Scenic Trail section intersect on Big Walker Mountain, may be difficult to monitor for illegal ATV traffic.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service boundary lines, improved and unimproved roads, and utility corridors delineate most of the roadless area boundary. An offset from roads and utility corridors bounding the area would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the roads (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.) or maintenance to the utility corridor right-of-ways. An offset of approximately 300 feet from the centerline of roads and utility corridors is recommended. The boundaries adjacent to utility corridors would have to be surveyed and delineated on the ground.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hunting is the most

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popular dispersed recreation attraction to the area. Some old roads and informal trails within the area are popular with mountain bikers and hikers. FDR 205 is a popular 4X4 wheel drive. Established recreation uses that would be discontinued should this area be designated a wilderness are: (1) mountain biking, and (2) 4X4 wheel driving on FDR 205.

#### WILDLIFE

The Long Spur roadless area provides habitat for a diversity of wildlife species. Featured species of the area are 71 percent turkey and 29 percent bear. If this area is designated a wilderness, maintenance of existing wildlife openings and artificial waterholes would be discontinued. Spur Branch is a wild trout stream.

#### WATER AVAILABILITY AND USE

The roadless area contains the headwaters of a multitude of tributaries that feed Little Walker Creek, a major stream that parallels VA 601 just outside the southern boundary of the roadless area. The headwaters of Spur Branch are located in the northeastern section of the area. There are no known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 38 percent of the area, or 2,407 acres, is classified as suitable for timber production. In the past 20 years, approximately 142 acres of timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 2,407 acres of suitable lands within this roadless area represents approximately 0.8 percent of all lands suitable for timber production on the Jefferson National Forest. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of October 1999. The potential for energy minerals, primarily natural gas, is estimated to be low to moderate. The area was leased under a Federal oil and gas lease in the 1980's. No oil or gas wells were drilled and the Federal lease expired. The potential for other Federal leasable minerals, including metallic minerals, is estimated to be low.

#### CULTURAL RESOURCES

Approximately 247 acres have been surveyed for cultural resources, as of March 1998, within the roadless area. No sites have been encountered; however, the area exhibits a moderate potential for prehistoric and historic resources.

#### LAND USES

Three special use permits have been authorized within the area. One permit allows the permittee to use unimproved FDR 6070 to access an earthquake monitoring device located near High Rock. Another permit is for an underground electric line running from a private residence located north of FDR 1023, southward to where it ties in with a utility pole on private land. The third permit is for the 300 mile endurance race, the 'Beast of the East'. If the Long Spur roadless area is designated as wilderness, these special uses would either be discontinued or an exemption made for their continuance.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan.

The roadless area is bounded by private lands on the northern, southern, and a portion of the eastern perimeters. Wilderness designation may limit options for containing fires on private and/or federal lands. The Long Spur roadless area is expected to be in the generally infested area for gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 91 percent of the area is composed of the Dry Mesic Oak (62 percent) and Dry and Dry-Mesic Oak-Pine (29 percent) ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**MOTTESHEARD** MOTTESHEARD ROADLESS AREA ID NUMBER: 14501

| Surface Ownership | Acres |
|---|---|
| Forest Service | 6,553 |
| Private | 2 |
| Park Service | 0 |
| TOTAL | 6,555 |

## Overview

### LOCATION, VICINITY, AND ACCESS

Mottesheard roadless area is located on the Jefferson National Forest, New Castle Ranger District, Monroe County, West Virginia and Craig County, Virginia. The area is bounded by private land to the north, WV 15 and 17, Forest Development Road (FDR) 5031 and private land to the west, WV 20, FDR 5023, and private land to the east, and FDR 279 and 50231 to the south. The area is found within a portion of U.S.G.S. West Virginia - Virginia Quadrangles Craig Springs, Paint Bank, Waiteville, and Gap Mills. Major vehicular access is provided by WV 15 and FDR 5031 in the northwest corner, WV 20 in the northeast corner, FDR 279 in the southwest corner, and FDR 5023 in the southeast corner.

There are three improved roads within the roadless area. FDR 5031 enters the area from WV 15 and forms a portion of the northwestern boundary; however, the last 1.4 miles of the road traverse through the roadless area in a northeasterly direction. This road is currently open to a gate located approximately 0.5 miles within the roadless area boundary. FDR 279C, a gated road, enters the area from FDR 279 along the southern boundary and runs northwesterly for approximately 0.8 miles. FDR 279D, 0.95 miles in length, runs in an easterly direction from FDR 279C. Total improved road mileage is 3.15 miles.

Two unimproved roads are also within the roadless area. FDR 5032, approximately 2.55 miles in length, is a gated road that enters the area from WV 17 to the north. FDR 279F, also a gated road, is 0.43 miles in length and enters the area along the southern boundary off of FDR 279. Total unimproved road mileage is 2.98 miles.

There are no developed, maintained trails within the area. However, there are old access and logging roads and informal trails within the area. Some have become overgrown and impassable to anything but foot traffic. Others are kept open by illegal ATV traffic, particularly along the northern section of the area near several private hunting camps.

### GEOGRAPHY, TOPOGRAPHY AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/ southwest trending ridges of sandstone and shale with parallel drainages with broad limestone valleys. Included in this area are Potts and Mottesheard Mountains with a series of small, steep sideslope drainages. Elevation ranges from approximately 2100 feet at Red Springs Branch along the southern boundary to 3932 feet at Arnolds Knob along the crest of Potts Mountain in the eastern end of the area.

Vegetation is primarily broadleaf deciduous species. Approximately 25 percent of the area has a site index of 70 or greater indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages, toeslopes, or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 75 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red

oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

#### CURRENT USE

The most popular dispersed recreational activity within the area is hunting. Illegal ATV use, primarily along the northern end of the area, generally coincides with the various hunting seasons. Approximately 32 percent, or 2124 acres, of the area are classified suitable for timber production. The U.S. military conducts regular, low level training flights over the area. Inventory data indicate no privately owned mineral rights, outstanding or reserved, underlying Federal surface ownership.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 3.15 miles of improved and 2.98 miles of unimproved road within the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads. Old access and logging roads and informal trails still exist and are evident; however, lack of maintenance and use is allowing some of them to become overgrown and regain a more natural appearance. Other old roads and informal trails are being kept open by frequent illegal ATV traffic, particularly along the northern end of the area.

Much of the area was cut over and frequently burned in the late 1800's and early 1900's. Approximately 83 percent of the timber is in the 21-100 year old age class, 12 percent is in the 101 plus years age class, four percent in the 11-20 year old age class, and less than one percent is in the 0-10 year old age class. There are 1,188 acres of possible inventoried old growth in the area.

Featured species of the area are primarily black bear and turkey. Grouse and gray squirrel are featured along the southern and eastern perimeter of the area. The area contains one large wildlife opening, approximately 15 acres in size, on the north side of Potts Mountain and is accessed from FDR 5032.

There is some evidence of iron ore and manganese prospecting pits in the area from the late 1800's and early 1900's.

Surrounding lands are approximately half National Forest and half private in ownership. Most of these lands are forested; however, some of the private lands are a mix of woodlands, pastures, farms, residences, and cabins.

#### KEY ATTRACTIONS

The area is very popular with hunters and there are several private hunting camps located just outside the northern boundary. There are no known proposed, endangered, threatened or sensitive (PETS) species within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the Mottesheard roadless area appears to be natural but there are signs of recent disturbance. The improved and unimproved roads are visually evident, as well as some of the old access roads and informal trails. If this roadless area becomes wilderness, the improved and unimproved roads would be in wilderness and removed from the Forest's transportation system. Some of the old access roads and informal trails

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in this roadless area have become overgrown and impassable, causing minimal impact on the area's natural ecological processes. Illegal ATV traffic is keeping some old roads and trails open, primarily in the northern portion of the area. Areas around the perimeter of the roadless area have been most affected by recent multiple use activities. The maintained 15 acre wildlife clearing on the north side of Potts Mountain is also eveident. There are seven acres in the 0-10 year old age class and 284 acres in the 11-20 year old age class.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Mottesheard roadless area is 6,555 acres in size and is located entirely on National Forest land. Mottesheard roadless area is basically a northeast-southwest running ridgetop, Potts Mountain, divided by a series of sideslope drainages. The north side of the ridgetop is in West Virginia and the south side is in Virginia. Mottesheard Mountain is a spur ridge that runs west from Potts Mountain. A solitude core area of 3443 acres, of which 2307 acres are Semi-Primitive Non-Motorized and 1136 acres are Semi-Primitive Motorized, exists in the central portion of the area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximately 52 percent. Visitors feel like they are in an unconfined natural area, particularly in the central portion of the area. Visitor use to the area can be described as moderate during hunting season and light during the remainder of the year. Noise from activities on the surrounding lands and roads can be heard along the periphery of the area. The U.S. military low level training flights can also be heard from within the area. Noise impacts and the reduced feeling of solitude and isolation are also felt when the roads within the area are being used for Forest Service administrative and management purposes.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads. Within the area, there are isolated and remote areas but there is a degree of evidence of human impact associated with roads, wildlife clearings, and past timber harvests. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

This roadless area does present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as hunting, cross-country hiking, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Mottesheard roadless area is in the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Shawvers Run, Barbours Creek, Peters Mountain, Mountain Lake, Kimberling Creek, and Beartown. Within the Southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

The closest designated wildernesses to the area are Mountain Lake and Shawvers Run. Mountain Lake is about 10 air miles to the southwest and Shawvers Run is about 10 air miles to the northeast.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridgetops while shale is found on the lower slopes. Some limestone is also present within the area.

There are no designated Research Natural Areas or Experimental Forests within the roadless area.

Approximately 58 percent of the area is in the Dry Mesic Oak ecological community type. Another 31 percent is in the Dry/Dry-Mesic Oak-Pine type, five percent is in the Xeric Pine/Pine-Oak type, and five percent is in the Mixed/Western Mesophytic type. Less than one percent is in the Conifer/Northern Hardwood ecological community type.

There are 1,184 acres of possible inventoried old growth. The ecological community types represented are: 970 acres Dry Mesic Oak (38 acres suitable) which represents 3.5 percent of the Forest's total for this type; 165 acres Dry and Dry-Mesic Oak-Pine (2 acres suitable) which represents 3.4 percent of the Forest's total; 38 acres Xeric Pine/Pine-Oak (0 acres suitable) which represents 4.2 percent of the Forest's total; and, 11 acres Mixed/Western Mesophytic (0 acres suitable) which represents 0.3 percent of the Forest's total for this type.

There are no known endangered, threatened, or sensitive species within the area.

Approximately 60 percent of this area is classified as having high existing scenic integrity.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area makes its preservation as potential wilderness practical. Most of the boundary follows property boundary lines and human improvements such as roads. Surrounding lands are approximately half National Forest and half private in ownership. The private land near this area does have the potential to impact wilderness attributes but the steep ridges and side drainages buffer the magnitude of potential impacts.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows features such as roads and property line boundaries, as well as natural features, such as ridges and streams. An offset from boundary roads such as WV 15 would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, road alignment, etc.). An offset of 300 feet from the centerline of existing roads is recommended. It is recommended that the original roadless area boundary be modified to utilize existing FDR's as boundaries to ease area identification on the ground. FDR 5031, along the western boundary, as well as FDR 279 and FDR 50231 along the southern boundary, should be designated the boundaries of the roadless area with an appropriate offset. Currently, a large portion of the southern boundary utilizes FDR 279; however, there are slight deviations.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation facilities or maintained trails within this roadless area. Most use occurs from hunting and illegal ATV use. No impacts to current legal recreation uses would be expected to occur should this area be designated a wilderness.

#### WILDLIFE

The Mottesheard roadless area provides habitat for a diversity of wildlife species. The primary featured species of the area are black bear and turkey. Grouse and gray squirrel are featured along the southern and eastern perimeter of the area. If this roadless area were designated as a wilderness, maintenance of the 15 acre wildlife clearing would be

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discontinued.

### WATER AVAILABILITY AND USE

The West Virginia side of this roadless area drains into Potts Creek and the Virginia side drains into Johns Creek. Wilson Branch, near the western boundary of the area, supports wild trout. The branch has good water chemistry and a good macroinvertebrate monitoring score. There are no known water storage needs or any existing special use water permit authorizations. Water quality should remain at its current level whether or not the area is designated wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 32 percent, or 2,124 acres, is classified as suitable for timber production. In the last 10 years, approximately 49 acres of timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 2,124 acres of suitable lands in this roadless area represent 0.7 percent of all lands suitable for timber production on the Jefferson National Forest. Mottesheard roadless area is within an area that was leased for Federal oil and gas in the 1980's. No oil or gas wells were drilled and the Federal leases expired. As of December 1999, no Federal oil and gas leases or other Federal mineral leases are in effect. The potential for energy minerals, primarily natural gas, is estimated to be low to moderate. Manganese was mined in Monroe County from 1894 through the 1940's. In the 1990's, the West Virginia Geological and Economic Survey and the U.S. Geological Survey conducted a survey of the manganese resources in this area. The manganese is associated with the Helderberg formation, which along the east flank of Peters Mountain, is more sandy (clastic) than the typical Helderberg limestone. On the southeast flank of Peters Mountain, which is north of the roadless area, the potential for occurrence of manganese is high. The roadless area has not been the site of major manganese mining such as on the southeast flank of Peters Mountain. In the roadless area, the potential for the occurrence of manganese and iron is estimated to be moderate to high while the potential for development of commercial deposits is estimated to be low. The potential for other Federal leasable minerals, including other metallic minerals, is estimated to be low.

### CULTURAL RESOURCES

As of March 1998, 833 acres of this roadless area have been surveyed for cultural resources. There are three inventoried 1900 era homesteads within this roadless area. Additionally, there are also two prehistoric transient camps believed to have been used prior to the year 800 A.D. This area has low potential for additional prehistoric or historic resources.

### LAND USES

No special use permit authorizations have been issued for land uses within this roadless area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. Wilderness designation may limit options for containing fires. Gypsy moth infestations are in the vicinity of this roadless area right now. Mortality can be severe (up to 25-30 percent) and oaks are the preferred hosts. Approximately 89 percent of the area is composed of the Dry Mesic Oak and Dry/Dry Mesic Oak-Pine ecological community types.

Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other National Forest or private land. MOTTESHEARD

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**MOUNTAIN LAKE WILDERNESS ADDITION A**

MOUNTAIN LAKE WILDERNESS ADDITION A ID NUMBER: 14104

## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 1,467 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 1,467 |

### LOCATION, VICINITY, AND ACCESS

The Mountain Lake Wilderness Addition A roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Craig and Giles Counties, Virginia. The area adjoins the southeastern section of the existing Mountain Lake Wilderness and is found within portions of U.S.G.S. Virginia-West Virginia Quadrangles Waiteville and Newport. The area is bounded by Mountain Lake Wilderness to the west, Forest Development Road (FDR) 10721 and private land to the north, VA 601 to the east and private land to the south. Major vehicle access is provided by VA 601 from the east and VA 632 to FDR 156 to the north.

There are no improved or unimproved roads within the area. FDR 10721, an improved road, serves as part of the northern boundary of the roadless area. FDR 156 is also an improved road that forms a portion of the boundary in the extreme northwestern corner of the area. This road provides access to a private inholding within the Mountain Lake Wilderness, a use that was established prior to the area being designated as wilderness in 1984.

There is one Forest Development Trail (FDT) within the area. A 1.5 mile segment of the Appalachian National Scenic Trail (FDT 1) passes through the area from near the terminus of FDR 10721 to Rocky Gap in the southeast corner of the area.

There are several old access and logging roads within the area. Most have become overgrown and impassable to anything but foot traffic.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Mountain Lake Wilderness Addition A roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone or shale with parallel drainages interspersed with broad limestone valleys. Included in this area is Johns Creek Mountain. Slopes vary from very steep on sideslopes to nearly flat along Johns Creek in the northwestern corner of the area. Drainage density is high on the slopes of Johns Creek Mountain. The area contains the headwaters of several tributaries that feed into Johns Creek. Elevation ranges from approximately 2160 feet adjacent to FDR 156 in the northwestern section of the area to 3400 feet at a point along the crest of Johns Creek Mountain, adjacent to the existing wilderness and roadless area boundary, in the extreme southwestern corner of the area.

The roadless area is forested by eastern deciduous and coniferous species. Approximately 17 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, white pine, and red maple dominate the overstory. The remaining 83 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on

the driest sites.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting and hiking. The Appalachian National Scenic Trail receives a moderate to high amount of use, depending on the season. A trailhead parking lot has been proposed by the Appalachian National Scenic Trail community, at the intersection of the trail with VA 601 near Rocky Gap on Johns Creek Mountain, to alleviate a potentially dangerous parking situation. A constructed parking lot would require less excavation on the west side of VA 601, inside the roadless area boundary. As of October 1998, no decision has been made to implement the proposal. The area is easily accessed along the eastern and northern boundaries. Approximately 12 percent, or 180 acres, of the area are classified as suitable for timber production. There are no outstanding mineral rights within the area.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 1.5 miles of trail and some of the old access and logging roads are visually evident and influences ecological processes, as a minimum, in the vicinity of the trail and roads. Some of the old roads are becoming overgrown and are regaining a more natural appearance.

Much of the area was cut over and frequently burned in the late 1800's and early 1900's. Approximately 85 percent of the timber is in the 21-100 year old age class, 12 percent is in the 101+ years age class, and three percent is in the 11-20 year age class. The area has no timber in the 0-10 year age class but has 150 acres of possible inventoried old growth.

Featured species for the area is 50 percent deer, 33 percent turkey, and 17 percent gray squirrel. There are no wildlife openings or recently seeded roads in this roadless area.

The roadless area adjoins a portion of the southeastern boundary of the Mountain Lake Wilderness. A large block of National Forest Land is located east of the area, private land adjoins the southern boundary, and a combination of private and National Forest land is to the north.

An electric power transmission line passes through the extreme southwestern corner of the area and serves as the roadless area boundary in that area.

#### KEY ATTRACTIONS

The area is primarily used by hikers and hunters. The Appalachian National Scenic Trail receives moderate to high use in the spring and during fall hunting season. Mountain Lake Wilderness, the largest wilderness on the Jefferson National Forest, adjoins the area. There are no known threatened, endangered, or sensitive species within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the Mountain Lake Wilderness Addition A roadless area appears to be natural but there are signs of disturbance. There are 1.5 miles of maintained trail and several old access and logging roads that are evident. There are no acres of 0-10 year old age class within the area. The overall influence of human activities to the area is minimal, primarily due to the area's challenging topography. Several areas along the

MOUNTAIN LAKE WILDERNESS ADDITION A

western edge of VA 601, within the roadless area, have long been used for illegal dumping. The slope away from the road is almost vertical in places and is littered with a large number of household appliances, which are readily visible from the road during leaf off conditions.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Mountain Lake Wilderness Addition A roadless area is 1,467 acres in size and is located entirely on National Forest land. The area adjoins the existing Mountain Lake Wilderness. Elevations range from approximately 2160 feet adjacent to FDR 156 in the northwestern section of the area to 3400 feet at a point along the crest of Johns Creek Mountain in the extreme southwestern corner of the area. A solitude core area of 532 acres exists in the central and southwestern portions of the area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximately 36 percent. When combined with the existing wilderness, visitors feel like they are in an unconfined, natural area. Visitor use of the area can be described as moderate. The Appalachian National Scenic Trail receives a moderate to high level of use in the spring and fall. The further one gets away from roads and the periphery of the area, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance. However, some peripheral areas may be impacted by noises and sights associated with traffic on improved roads or from activities associated with adjoining private land, which may reduce the feeling of solitude and isolation.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Mountain Lake Wilderness Addition A roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hiking and hunting are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Mountain Lake Wilderness Addition A roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (1,467 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridge tops. Shale and limestone are the bedrock on the lower slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area's large relief and highly dissected topography creates a wide range of ecological types from hot, dry windswept ridgetops to cool, moist, protected coves.

The vast majority of the area, approximately 75 percent, is in the Dry Mesic Oak ecological

community type. Nineteen percent is in the Xeric Pine and Pine-Oak type, five percent in the Mixed and Western Mesophytic type, and one percent in the Conifer-Northern Hardwood type.

There are 150 acres of inventoried possible old growth. The ecological community types represented are: 96 acres Dry Mesic Oak (0 acres suitable) which represents 0.3 percent of the Forest's total and 54 acres Xeric Pine and Pine-Oak (0 acres suitable) which represents 6.0 percent of the Forest's total.

There are no known threatened, endangered, or sensitive species within the area.

Approximately 80 percent of the area is classified as having High to Very High Scenic Integrity.

The western boundary of the roadless area runs coincident with Mountain Lake Wilderness.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Mountain Lake Wilderness Addition A roadless area makes its preservation as potential wilderness practical. The western boundary of the area adjoins the existing Mountain Lake Wilderness and would increase the size of the wilderness from 11,113 acres to approximately 12,580 acres. The eastern, northern, and southern boundaries are defined primarily by improved roads and property line boundaries. There are no outstanding mineral rights within the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service wilderness boundary lines delineate the western boundary of the roadless area. FDR 10721, FDR 156, and property line boundaries delineate most of the northern boundary. An offset from the roads would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the roads (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.). An offset of 100 feet from the centerline of the roads is recommended and identical to that established for the adjoining Mountain Lake Wilderness. If a trailhead parking lot is constructed along VA 601, in the vicinity of Rocky Gap, an offset of 100 feet around the perimeter of the lot is also recommended. Much of the remaining boundary follows existing property lines. Approximately 0.1 miles of the boundary line adjoins other National Forest land where the boundary line would be more difficult to establish.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hiking and hunting are the major recreation attractions to the immediate area. Mountain Lake Wilderness adjoins the area. Peters Mountain Wilderness is located approximately 6.7 air miles northwest of the area.

#### WILDLIFE

The Mountain Lake Wilderness Addition A roadless area provides habitat for a diversity of wildlife species. Featured species of the area are deer, turkey, and gray squirrel. There are no known threatened, endangered, or sensitive wildlife species within the area.

MOUNTAIN LAKE WILDERNESS ADDITION A

### WATER AVAILABILITY AND USE

The roadless area contains the headwaters of several tributaries that feed into Johns Creek. There are no known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations within the area. Approximately 12 percent of the area, or 180 acres, is classified as suitable for timber production. No timber harvest has taken place in the past 10 years; however, future timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 180 acres of suitable lands within this roadless area represents approximately 0.06 percent of all lands suitable for timber production on the Jefferson National Forest. There are no outstanding mineral rights within the area.

### CULTURAL RESOURCES

Approximately 82 acres have been surveyed for cultural resources, as of March 1998, within the roadless area. No sites were identified; however, the area exhibits a low to moderate potential for prehistoric and historic resources.

### LAND USES

No special use permit authorizations have been issued for land uses in this roadless area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Fire suppression would be primarily by hand tools. Use of motorized and mechanized transport and equipment such as ATV's, bulldozers, and chainsaws would be allowed only upon specific approval by the appropriate line officer. Thus, wildfires would likely attain larger sizes than under current management. The roadless area is bounded by private lands to the south and in mixed ownership to the north. Wilderness designation may limit options for containing fires on private and/or federal lands. The Mountain Lake Wilderness Addition A roadless area is expected to be in the generally infested area for gypsy moth within the next five to ten years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 75 percent of the area is comprised of the Dry Mesic Oak ecological community type. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

MOUNTAIN LAKE WILDERNESS ADDITION B ID NUMBER: 14105



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 3,958 |
| Private | 59 |
| Park Service | 0 |
| TOTAL | 4,017 |

### LOCATION, VICINITY, AND ACCESS

The Mountain Lake Wilderness Addition B roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Craig and Giles Counties, Virginia and Monroe County, West Virginia. The area adjoins the northeastern section of the existing Mountain Lake Wilderness and is found within a portion of U.S.G.S. Virginia-West Virginia Quadrangle Waiteville. The area is bounded by Mountain Lake Wilderness to the west, Forest Development Road (FDR) 10531 to the north, and a combination of other National Forest and private land to the east and south. Major vehicle access is provided by VA 632 from the south and VA 636, WV 17, WV 15, and FDR 10631 from the east.

There are two improved roads within the area. FDR 10631 is an open road and enters the area from VA 636 and runs 0.5 miles into the area and terminates on the south side of Porterfield Branch. Former FDR 753 (now identified as P5) enters the area from VA 632 and runs north for approximately 0.9 miles and terminates adjacent to the Mountain Lake Wilderness boundary. Though the road is no longer maintained by the Forest Service, the road does provide access to a private inholding within the existing wilderness area and is considered an improved road. Total improved road mileage is 1.4 miles.

There are no unimproved roads within the area.

There is one Forest Development Trail (FDT) within the area. The Potts Mountain Trail (FDT 55) traverses the area from east to west along the crest of Potts Mountain, a distance of 1.23 miles. The trail is designated for foot travel only.

There are numerous old access and logging roads scattered throughout the area. Some have become overgrown and impassable to anything but foot traffic. Others are being used for illegal ATV and 4-wheel drive traffic, particularly in the eastern area of the area adjacent to private lands.

There is a 59 acre private inholding located in the southcentral portion of the roadless area.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Mountain Lake Wilderness Addition B roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone or shale with parallel drainages interspersed with broad limestone valleys. Included in this area is Potts Mountain and Piney Ridge. Slopes vary from very steep on sideslopes to nearly flat along the larger drainages. Drainage density is high on the slopes of Piney Ridge and Potts Mountain and moderate elsewhere. The area contains the headwaters of several streams and many tributaries that feed into Johns Creek, Little Oregon Creek, and Crosier Branch. Elevation ranges from approximately 1960 feet adjacent to Johns Creek in the southwestern section of the area to 3400 feet at a point along the crest of Potts Mountain adjacent to the existing wilderness and roadless area boundary.

The roadless area is forested by eastern deciduous and coniferous species. Approximately 21 percent of the area has a site index of 70 or greater, indicating moderate to high

MOUNTAIN LAKE WILDERNESS ADDITION B

productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, white pine, and red maple dominate the overstory. The remaining 79 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting and hiking. Public access to the area is limited to a few roads, FDR's 10631 and 10531. Approximately 13 percent, or 517 acres, of the area are classified as suitable for timber production. There are no outstanding mineral rights within the area.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 1.4 miles of improved road and 1.23 miles of maintained trail are visually evident and influences ecological processes, as a minimum, in the vicinity of the roads and trail. Old access and logging roads still exist and are evident. Many are becoming overgrown and are regaining a more natural appearance. Illegal ATV and 4-wheel drive traffic is evident, particularly along the eastern boundary of the area adjacent to private land.

Much of the area was logged and frequently burned in the late 1800's and early 1900's. Approximately 82 percent of the timber is in the 21-100 year old age class, 15 percent is in the 101+ years age class, and three percent is in the 11-20 year age class. The area has no timber in the 0-10 year age class but has 27 acres of possible inventoried old growth.

Featured species for the area is 90 percent deer, eight percent turkey, and two percent bear. There are no wildlife openings or recently seeded roads in this roadless area.

The roadless area adjoins a portion of the northeastern boundary of the Mountain Lake Wilderness. The other three sides of the area are surrounded primarily by private land with small inclusions of other National Forest land.

#### KEY ATTRACTIONS

The area is primarily used by hunters and some hikers. The majority of use in this roadless area occurs during big game hunting season. Mountain Lake Wilderness, the largest wilderness on the Jefferson National Forest, adjoins the area. There are no federally threatened, endangered, or sensitive species within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the Mountain Lake Wilderness Addition B roadless area appears to be natural but there are signs of disturbance. There are 1.4 miles of improved road and 1.23 miles of maintained trail that are evident. If this roadless area becomes wilderness, only FDR 10631 would be removed from the Forest's transportation system. Former FDR 753 (now P5), which provides access to a private

inholding within the existing Mountain Lake Wilderness, would continue to be used to access the private land. The landowner has a legitimate right-of-way to cross over National Forest land to access this property. Some old access and logging roads have become overgrown and are impassable, causing minimal impact on the area's natural ecological processes. Some old roads receive a significant amount of illegal ATV and 4-wheel drive traffic adjacent to private property in the eastern and southern portions of the area. There are no acres of 0-10 year old age class within the area. The overall influence of human activities on the interior of the area is minimal, primarily due to the area's remoteness and challenging topography.

### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Mountain Lake Wilderness Addition B roadless area is 4,018 acres in size, of which 3,959 acres are in Forest Service ownership and 59 acres are in private ownership. The area adjoins the existing Mountain Lake Wilderness and is bounded on the other three sides by private land with inclusions of National Forest land. Width of the roadless area varies from 0.2 miles to approximately 4.2 miles before adjoining with private land. There is 59 acre private land inholding in the southern portion of the area. Public access to the area is limited due to the land ownership pattern of the area. Elevations range from approximately 1960 feet adjacent to Johns Creek in the southwestern section of the area to 3400 feet at a point along the crest of Potts Mountain. A solitude core area of 3,271 acres exists within the area, of which 584 acres are Semi-Primitive Motorized and 2,687 acres are Semi-Primitive Non-Motorized. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The proportion of semi-primitive core acres providing a level of solitude within this roadless area is approximately 81 percent. When combined with the existing wilderness, visitors feel like they are in an unconfined, natural area. Visitor use of the area can be described as low. The area receives a moderate level of use during hunting season. Use by hikers is low. The further one gets away from roads and the periphery of the area, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance. However, some peripheral portions of the area may be affected by noises and sights associated with traffic on VA 632 or from activities from private land which may reduce the feeling of solitude and isolation. In addition, there is considerable illegal ATV and 4-wheel drive traffic scattered throughout the periphery of the area, particularly along the eastern boundary, which also may reduce the feeling of solitude and isolation.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. The level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Mountain Lake Wilderness Addition B roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Opportunities for activities such as hunting and hiking are present in the area.

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Mountain Lake Wilderness Addition B roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (4,018 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern

MOUNTAIN LAKE WILDERNESS ADDITION B

Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridge tops. Shale and limestone are the bedrock on the lower slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area's large relief and highly dissected topography creates a wide range of ecological types from hot, dry windswept ridgetops to cool, moist, protected coves.

Approximately 45 percent of the roadless area is in the Dry Mesic Oak ecological community type, 24 percent is in the Dry and Dry Mesic Oak–Pine type, 19 percent is in the Dry and Xeric Oak type, 11 percent is in the Xeric Pine and Pine-Oak type, one percent is in the Conifer/Northern Hardwood type, and less than one percent is in the Mixed Mesophytic type.

There are 27 acres of inventoried possible old growth. The ecological community type represented is: 27 acres Dry Mesic Oak (0 acres suitable), which represents 0.09 percent of the Forest's total.

There are no known threatened, endangered, or sensitive species within the area.

Approximately 73 percent of the area is classified as having High Scenic Integrity.

The western boundary of the roadless area runs coincident with Mountain Lake Wilderness.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Mountain Lake Wilderness Addition B roadless area makes its preservation as potential wilderness practical. The western boundary of the area adjoins the existing Mountain Lake Wilderness and would increase the size of the wilderness from 11,113 acres to approximately 15,131 acres. The eastern and southern boundaries would be difficult to manage and administer due to the lack of public access across private land. There are no outstanding mineral rights or federal leases of oil or gas within this roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service wilderness boundary lines delineate the western boundary of the roadless area. FDR 10531 delineates a portion of the northern boundary. An offset from this road would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, etc.). An offset of 100 feet from the centerline of the road is recommended and identical to that established for the adjoining Mountain Lake Wilderness. Much of the remaining boundary follows existing property lines. Approximately 1.5 miles of the boundary line adjoins other National Forest land where the boundary line would be more difficult and expensive to establish.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hunting and hiking

are the major recreation attractions to the immediate area. Mountain Lake Wilderness adjoins the area. Peters Mountain Wilderness is located approximately 7.3 air miles to the west of the area.

### WILDLIFE

The Mountain Lake Wilderness Addition B roadless area provides habitat for a diversity of wildlife species. Featured species of the area are deer, turkey, and bear. There are no known threatened, endangered, or sensitive wildlife species within the area.

### WATER AVAILABILITY AND USE

The roadless area contains the headwaters of several streams and many tributaries that feed into Johns Creek, Little Oregon Creek, and Crosier Branch. There are no known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 13 percent of the area, or 517 acres, is classified as suitable for timber production. No timber harvest has taken place in the past 10 years; however, future timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 517 acres of suitable lands within this roadless area represents approximately 0.2 percent of all lands suitable for timber production on the Jefferson National Forest. There are no outstanding mineral rights or federal oil or natural gas leases within the area.

### CULTURAL RESOURCES

No cultural resource surveys have been conducted within the area to date. The area exhibits a low to moderate potential for prehistoric and historic resources.

### LAND USES

No special use permit authorizations have been issued for land uses in this roadless area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Fire suppression would be primarily by hand tools. Use of motorized and/or mechanized equipment and transport such as ATV's , bulldozers, and chainsaws would be allowed only upon specific approval by the appropriate line officer. Thus, wildfires would likely attain larger sizes than under current management. The roadless area is bounded by private lands to the southern and eastern portions of the area. Wilderness designation may limit options for containing fires on private and/or federal lands. The Mountain Lake Wilderness Addition B roadless area is expected to be in the generally infested area for gypsy moth in the next five to ten years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 64 percent of the area is in the Dry Mesic Oak ecological community type. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

MOUNTAIN LAKE WILDERNESS ADDITION B

**Need**

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

MOUNTAIN LAKE WILDERNESS ADDITION C ID NUMBER: 14106



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 494 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 494 |

### LOCATION, VICINITY, AND ACCESS

The Mountain Lake Wilderness Addition C roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Giles County, Virginia. The area adjoins the northwestern corner of the existing Mountain Lake Wilderness, to the west of Little Mountain, and is found within portions of U.S.G.S. Virginia-West Virginia Quadrangles Interior and Waiteville. The area is bounded by Mountain Lake Wilderness to the east, VA 635 to the north, and White Rock Branch to the south and west. Major vehicle access is provided by several routes heading east or north from US 460.

There is one improved road within the area. Forest Development Road (FDR) 10470 enters the area from VA 635 and travels 0.16 miles into the northwest corner of the area. Total improved road mileage is 0.16 miles.

There are no unimproved roads or Forest Development Trails (FDT) within the roadless area.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Mountain Lake Wilderness Addition C roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone or shale with parallel drainages interspersed with broad limestone valleys. Included in this area is Kire Mountain. Nearby mountains include Fork Mountain to the north, Little Mountain and Potts Mountain to the east and south, and Rocky Mountain to the west. Slopes vary from very steep on sideslopes to nearly flat along White Rock Branch. Drainage density is moderate. The area contains the headwaters of several tributaries that feed into Stony Creek. Elevation ranges from approximately 2740 feet adjacent to VA 635 in the northern section of the area to 3400 feet at a point along the crest of Kire Mountain.

The roadless area is forested by eastern deciduous and coniferous species. Approximately 17 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, white pine, and red maple dominate the overstory. The remaining 83 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting and hiking. Approximately 52 percent, or 257 acres, of the area are classified as suitable for timber production. There are no outstanding mineral rights or oil or gas leases within the area.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

MOUNTAIN LAKE WILDERNESS ADDITION C

The 0.16 miles of improved road is visually evident and influences ecological processes, as a minimum, in the vicinity of the road. VA 635 and VA 613, though outside the roadless boundary, are visually evident from many points around the periphery of the area. White Rocks Campground, a developed recreation facility, is located approximately 0.20 miles from the southeast corner of the area.

Much of the area was logged and frequently burned in the late 1800's and early 1900's. Approximately 96 percent of the timber is in the 21-100 year old age class and the remaining four percent is in the 11-20 year age class. The area has no timber in the 0-10 year age class but has 19 acres of possible inventoried old growth.

Featured species for the area is bear. There are no wildlife openings or recently seeded roads in this roadless area.

The roadless area adjoins a portion of the northwestern boundary of the Mountain Lake Wilderness. The other three sides of the area are surrounded by other National Forest lands.

#### KEY ATTRACTIONS

The area is primarily used by hunters. Mountain Lake Wilderness adjoins the area and Peters Mountain Wilderness is located approximately four air miles to the west. There are no federally threatened, endangered, or sensitive species within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the Mountain Lake Wilderness Addition C roadless area appears to be natural but there are signs of disturbance. There is approximately 0.16 miles of improved road that is evident. If this roadless area becomes wilderness, this road would be in wilderness and removed from the Forest's transportation system. There are no acres of 0-10 year old age class within the area. The overall influence of human activities to the area is minimal, primarily due to the area's challenging topography.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Mountain Lake Wilderness Addition C roadless area is 491 acres in size. Kire Mountain, in the center of the area, is the highest point within the area. The area is bounded to the north by VA 635 and a combination of VA 613 and White Rock Branch to the west. White Rock Branch also forms the southern boundary of the area. Elevations range from approximately 2740 feet adjacent to VA 635 to 3400 feet at a point along the crest of Kire Mountain. There is no solitude core area for this small roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. However, if this roadless area were added to the adjoining wilderness, the core area of the wilderness would be afforded additional protection. When combined with the existing wilderness, visitors feel like they are in an unconfined, natural area. Visitor use of the area can be described as low. The area receives some use during hunting season. The further one gets away from roads and the periphery of the area, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance. However, peripheral areas may be impacted by noises and sights associated with traffic on VA 635 and VA 613, which may reduce the feeling of solitude and isolation.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive

camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. The level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Mountain Lake Wilderness Addition C roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting and hiking are present in the area.

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Mountain Lake Wilderness Addition C roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (491 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridge tops. Shale and limestone are the bedrock on the lower slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area's large relief and highly dissected topography creates a wide range of ecological types from hot, dry windswept ridgetops to cool, moist, protected coves.

The vast majority of the area, approximately 96.5 percent, is in the Dry Mesic Oak ecological community type. The remaining 3.5 percent is in the Mixed and Western Mesophytic type.

There are 19 acres of inventoried possible old growth. The ecological community type represented is: 19 acres Dry Mesic Oak (14 acres suitable) which represents 0.07 percent of the Forest's total.

There are no known threatened, endangered, or sensitive species within the area.

Approximately 39 percent of the area is classified as having High Scenic Integrity.

The eastern boundary of the roadless area runs coincident with Mountain Lake Wilderness. Peters Mountain Wilderness is located approximately four air miles to the east of the roadless area.

### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Mountain Lake Wilderness Addition C roadless area makes its preservation as potential wilderness practical. The eastern boundary of the area adjoins the existing Mountain Lake Wilderness and would increase the size of the wilderness from 11,113 acres to approximately 11,604 acres. The remaining boundary follows VA 635 or White Rock Branch. There are no outstanding mineral rights within the roadless area.

### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service wilderness boundary lines delineate the eastern boundary of the roadless

MOUNTAIN LAKE WILDERNESS ADDITION C

area. VA 635 and White Rock Branch delineate the remaining boundaries. An offset from VA 635 would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.). An offset of 100 feet from the centerline of VA 635 is recommended.

## Availability for Wilderness

### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hunting and hiking are the major recreation attractions to the immediate area. White Rocks Campground, a developed facility, is located 0.20 miles from the southeast boundary of the roadless area. Mountain Lake Wilderness adjoins the area.

### WILDLIFE

The Mountain Lake Wilderness Addition C roadless area provides habitat for a diversity of wildlife species. Featured species of the area is bear. There are no known threatened, endangered, or sensitive wildlife species within the area.

### WATER AVAILABILITY AND USE

The roadless area contains the headwaters of several tributaries that feed into Stony Creek. There are no known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 52 percent of the area, or 257 acres, is classified as suitable for timber production. No timber harvest has taken place in the past 10 years; however, future timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 257 acres of suitable lands within this roadless area represents approximately 0.08 percent of all lands suitable for timber production on the Jefferson National Forest. There are no outstanding mineral rights or federal oil or natural gas leases within the area.

### CULTURAL RESOURCES

Approximately 53 acres have been surveyed for cultural resources, as of March 1998, within the roadless area. One prehistoric transient camp has been identified. The area exhibits a moderate to high potential for additional prehistoric and historic resources.

### LAND USES

No special use permit authorizations have been issued for land uses in this roadless area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Fire suppression would be primarily by hand tools. Use of motorized and/or mechanized equipment and transport such as ATV's, bulldozers, and chainsaws would be allowed only upon specific approval by the appropriate line officer. Thus,

MOUNTAIN LAKE WILDERNESS ADDITION C

wildfires would likely attain larger sizes than under current management. The roadless area is surrounded by other National Forest lands. Wilderness designation may limit options for containing fires. The Mountain Lake Wilderness Addition C roadless area is expected to be in the generally infested area for gypsy moth in the next five to ten years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 96.5 percent of the area is composed of the Dry Mesic Oak ecological community type. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**NORTH FORK OF POUND**

NORTH FORK OF POUND ID NUMBER: 14509

## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 4,714 |
| Private | 4 |
| Park Service | 0 |
| TOTAL | 4,718 |

### LOCATION, VICINITY, AND ACCESS

The North Fork of Pound roadless area is located on the Jefferson National Forest, Clinch Ranger District, in the northwestern corner of Wise County, Virginia, south of the Kentucky/Virginia border. The area is situated between the crest of Pine Mountain and North Fork of Pound Lake and is found within portions of U.S.G.S. Kentucky-Virginia Quadrangles Flat Gap and Jenkins West. The area is generally bounded by Pine Mountain to the north, an electric power transmission corridor to the east, a combination of private property and other National Forest lands to the west, a combination of the north shore of North Fork of Pound Lake, other National Forest land, and private property to the south. Major vehicle access to the area is limited. US 23, west of Pound, to VA 671 to Forest Development Road (FDR) 834 provides vehicular access to within 0.4 miles of the roadless area near Phillips Creek Picnic Area in the southwestern portion of the area. FDR 2027, off VA 671, also provides access to the area through Cane Patch Campground. Boat access is available via several boat launches along the shore of North Fork of Pound Lake.

There are no improved within the roadless area.

An unimproved road about .2 miles long provides access to a water tank on a private inholding.

Portions of two Forest Development Trails (FDT) are within the area. FDT 202, the Phillips Creek Trail, is a 1.0 mile loop hiking and interpretive trail that begins and ends near the Phillips Creek Picnic Area. Approximately 0.8 miles of this trail are in the roadless area. FDT 206, the Laurel Fork Trail, is a 1.6 mile hiking trail that accesses Laurel Fork Campground on the north shore of North Fork of Pound Lake. Approximately 0.9 miles of this trail are within the roadless area. Total maintained trail mileage is 1.7 miles.

There are numerous abandoned access roads and railroad grades throughout the area. Some have become overgrown and impassable to anything but foot traffic, while others remain well defined. The area does experience significant illegal ATV traffic, primarily accessing the area from the north side of Pine Mountain along a non-system ridgeline trail, then moving southward toward North Fork of Pound Lake.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the North Fork of Pound roadless area lies in the Pine and Cumberland Mountains Subsection of the Southern Cumberland Mountain Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section contains most of Virginia's coal resources and is characterized by faulted and folded monoclinal mountains comprised of sandstone and shale interspersed with limestone. Included in this area is Pine Mountain. The highly dissected landscapes found within this section are the result of differential erosion rates of the various rock beds. The area contains the headwaters of several streams tributary to the North Fork Pound River. These include Phillips Creek, Laurel Fork, Hopkins Branch, and Stacy Branch. Elevation ranges from approximately 1581 feet along the north shore of North Fork of Pound Lake to 3120 feet at a point along the crest of Pine Mountain.

The roadless area is forested by mixed mesophytic hardwood and coniferous species. Approximately 99 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. The best sites in this area occur in colluvial drainages or toeslopes where overstory species may include typical cove and bottomland hardwood species such as yellow-poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, and red maple. White oak, northern red oak, and hickory forest types occupy upper and midslope positions. Common understory types are mountain laurel, rhododendron, huckleberry, blueberry, greenbriar, and other shrubs and forbs.

The vast majority of the area, approximately 80 percent, is in the Dry Mesic Oak ecological community type. The Mixed and Western Mesophytic ecological community type represents 17 percent of the area while the River Floodplain type represents two percent of the area. The Dry and Dry-Mesic Oak-Pine type represents less than one percent of the area.

### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting, fishing, hiking, primitive camping, and illegal ATV use. The two trails within the area receive a moderate amount of use. Nearly the entire roadless area is within the designated Public Water Supply for the Town of Pound. The water is impounded in North Fork of Pound Lake before delivery to the town. The population served is approximately 1800. In 1995, local governments passed resolutions asking the Forest Service to prohibit timber cutting within the roadless area so as to not adversely affect the water quality of North Fork of Pound Lake. According to the North Fork of Pound Opportunity Area Analysis (Draft, 1994), approximately 99 percent, or 4706 acres, are classified as suitable for timber production. The CISC (Continuous Inventory of Stand Conditions) database has not been updated.. There is a four- acre private inholding located in the southeastern portion of the area adjacent to Stacy Branch. The town of Pound, Virginia owns this inholding. A 50,000 gallon water tank is located on this inholding. The tank is not in operation. Inventory data indicate about 946 acres of privately owned, outstanding or reserved, mineral rights underlying Federal surface ownership. Tract J-985 is entirely within the roadless area and has 268.71 acres of outstanding mineral rights. Tract J-1352d has 876.92 acres of reserved oil and gas rights. About 677 acres of this tract are within the roadless area. Natural gas development is occurring in the area southwest of the roadless area. As part of this ongoing development of natural gas fields, development of the privately owned natural gas on tract J-1352d is planned for the very near future.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

There are no improved within the area. However, the 1.7 miles of developed trails are visually evident and influence ecological processes, as a minimum, in the vicinity of the trails. Many old access roads, railroad grades, and trails still exist and are evident while others are becoming overgrown and are regaining a more natural appearance. Illegal ATV traffic is evident, particularly along the northern boundary of the area adjacent to private land.

Much of the area was cut over and frequently burned in the late 1800's and early 1900's. Approximately 72 percent of the timber is in the 21-100 year old age class and 27 percent is in the 101 plus years age class. The area has 153 acres of possible inventoried old growth.

No known timber harvests have been made in this area since the mid 1960's when the US Army Corps of Engineers began purchasing land for the construction of the North Fork of Pound Reservoir. Much of the area, especially the lower half of Pine Mountain, was in

NORTH FORK OF POUND

pasture and old fields that have reverted to young timber stands. Most of the older stands of trees are located where the original resident's woodlots were located prior to US Army Corps of Engineers land acquisition. In May 1983, the land was transferred to the US Forest Service.

According to the North Fork of Pound Opportunity Area Analysis (Draft, 1994), featured species of the area is wild turkey. The northern portion of the roadless area is bounded by exceptionally rugged private property along Pine Mountain. The western boundary is a mix of other National Forest and private land and follows partly along Bad Creek. The southern boundary follows other National Forest land north of Cane Patch Campground and Phillips Creek Picnic Area, a large section of the north shore of North Fork of Pound Lake, private property boundaries adjacent to the Stacy Branch drainage, and a portion of a Chesapeake and Ohio Railroad track. The eastern boundary follows an electric power transmission line corridor for approximately 1.1 miles, from just east of the old Pine Mountain Lookout on Pine Mountain to its intersection with the railroad track.

The closest existing wilderness areas to this roadless area are Beartown Wilderness on the Wythe Ranger District, approximately 63 air miles to the east, and Big Laurel Branch Wilderness, on the Watauga Ranger District of the Cherokee National Forest, approximately 62 air miles to the southeast.

#### KEY ATTRACTIONS

Activities associated with hunting, lakeshore fishing, and hiking are key attractions to the area. North Fork of Pound Lake provides opportunities for water sports including fishing and boating. Laurel Fork Campground, a primitive facility within the roadless area, can be accessed by the Laurel Fork Trail or by boat. This campground contains two fire rings and two fiberglass toilet structures. Cane Patch Campground and Phillips Creek Picnic Area are developed facilities just outside the roadless area boundary in the southwestern portion of the area.

All, or portions of, two unique communities identified by the Virginia Division of Natural Heritage are located within the area. The 390- acre Indian Grave Gap area is situated in the headwaters of the Laurel Fork and Phillips Creek drainages and encompasses a complex of unique forest communities and a naturally open exemplary seepage wetland community. About three acres of the 215- acre Pine Mountain Tunnel area are located in the southeastern portion of the area. Five individuals of the sensitive Eastern small-footed bat were captured, tagged, and released in this area in June 1995. Swainson's warbler has been found in this area as well. There are no other known Federally threatened, endangered, or sensitive species within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the North Fork of Pound roadless area appears to be natural but there are signs of disturbance. There are 1.7 miles of maintained trail and numerous old access roads and railroad grades throughout the area. These trails and old roads influence ecological processes, as a minimum, in the vicinity of the trails and roads. Some of the old roads have become overgrown and are impassable to all but foot traffic. The old roads, railroad grades, old homesites, fields, and other past improvements have been abandoned and the forces of nature are beginning to mute their appearance. Much of the area has the look of a once managed area that has been neglected and given over to the forces of nature. Illegal ATV traffic occurs in several areas along the northern boundary. There is a four- acre private inholding with

watertank, located adjacent to Stacy Branch in the southeastern corner of the area while an electric power transmission line corridor forms the eastern boundary. There are numerous unmaintained cemeteries and individual gravesites located within the area. Documented cemeteries include Laurel Fork Cemetery and the Short Family Cemetery. Laurel Fork Campground is a primitive facility located within the roadless area near the north shore of North Fork of Pound Lake. There are 30 acres of 0-10 year old age class within the area, all of which are old fields reverting to young timber stands. The overall influence of recent human activities to the area is minimal, primarily due to the area's remoteness and challenging topography.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The North Fork of Pound roadless area is 4,760 acres in size, of which 4,756 acres are located on National Forest land. The area includes the southern face of Pine Mountain from North Fork of Pound Lake to the crest of Pine Mountain. The highly dissected topography allows the user to quickly get away from noises and sights associated with activities from the adjoining lake, private land, and Forest Service recreation areas. Elevations range from approximately 1581 feet along the north shore of North Fork of Pound Lake to 3120 feet at a point along the crest of Pine Mountain. A solitude core area of 4,255 acres exists in the area exclusive of small areas in the southeastern section of the area and north of the recreation facilities at Cane Patch Campground and Phillips Creek Picnic Area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximately 89 percent. Visitor use of the area can be described as low to moderate. The further one gets away from roads, the lake, and the periphery of the area, the greater the feeling of being in an unconfined, natural area. Past human developments and improvements are becoming muted by the forces of nature. However, some areas may be impacted around the periphery of the area by noises associated with traffic on improved and unimproved roads, adjacent campgrounds and picnic areas, motorized boats on the lake, activities from adjoining private land, and noises associated with the power transmission line corridor and railroad which may reduce the feeling of solitude and isolation.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

North Fork of Pound roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, fishing, primitive camping, and hiking are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

The roadless area is unique because it is within the Pine and Cumberland Mountains Subsection of the Southern Cumberland Mountain Ecosystem Section (4,760 acres). This ecosystem subsection and section is not represented in any existing wildernesses on the Jefferson National Forest or other areas in the Appalachian Mountains.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. All, or portions of, two unique communities identified by the Virginia

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Division of Natural Heritage are located in the area, which may provide opportunities for scientific and educational purposes (see 1.i.). Swainson's warbler, a locally rare bird species, is found within the roadless area. There are no known Federally threatened, endangered, or sensitive species within the area.

The area is within the coal producing region of Virginia. Several cemeteries and individual gravesites are known to exist within the area.

There are 153 acres of inventoried possible old growth. The ecological community types represented are: 39 acres Dry Mesic Oak (39 acres suitable) which represents 0.1 percent of the Forest's total; 71 acres Mixed/Western Mesophytic (71 acres suitable) which represents 1.9 percent of the Forest's total for that type; and 22 acres Dry and Dry-Mesic Oak-Pine (22 acres suitable) which represents 0.46 percent of the Forest's total for this type.

Approximately 96 percent of the area is classified as having high existing scenic integrity.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of North Fork of Pound roadless area makes its preservation as potential wilderness practical. Most of the boundary follows property lines, other National Forest lands, and the north shore of North Fork of Pound Lake. Boundaries would need to be established on the ground where the boundary joins other National Forest lands, particularly where the boundary falls along sideslopes and ridges in the southwestern and southeastern portions of the area. Although surrounding private lands and North Fork of Pound Lake contrast somewhat with the area, the effects are generally limited to the periphery along the boundary of the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service boundary lines delineate approximately half of the roadless area boundary. An electric power transmission line corridor, railroad track, and the north shore of North Fork of Pound Lake delineate about one-quarter of the area while adjoining National Forest land makes up the remainder of the area. Defining the on-the-ground boundary where the roadless area adjoins other National Forest land would be time consuming and expensive, particularly in areas along the western and southwestern boundaries. An offset from the powerline corridor, railroad track, and lake would enhance wilderness characteristics of the area by avoiding impacts that are a result of maintaining these facilities. An offset of 300 feet from the centerline of the powerline corridor and railroad track and the high water mark of the lake is recommended. Monitoring and managing the continuing illegal ATV traffic coming from the southside of Pine Mountain into the area will be difficult due to the location and remoteness of the activity.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There is one developed recreation facility within the roadless area. Laurel Fork Campground is a primitive facility that is accessible by foot or boat. Two other facilities, Cane Patch Campground and Phillips Creek Picnic Area, are located just outside the roadless boundary in the southwestern portion of the area. The adjacent North Fork of Pound Lake provides water oriented recreation opportunities in the form of fishing and boating. Several boat launches are located around the periphery of the lake. Hunting, fishing, hiking, and dispersed camping are popular uses within the roadless area. The area is approximately 11 miles north of Wise, Virginia and two

miles west of Pound, Virginia. No impacts to existing, legal recreation uses would be expected should this roadless area be designated as wilderness.

### WILDLIFE

The North Fork of Pound roadless area provides habitat for a diversity of wildlife species. Wild turkey is the featured species. Swainson's warbler is known to occur within the roadless area.

### WATER AVAILABILITY AND USE

The roadless area encompasses the headwaters of several streams tributary to the North Fork of Pound River and lake: Phillips Creek, Laurel Fork, Hopkins Branch, and Stacy Branch. Water chemistry in Phillips Creek is good, but there is insufficient flow to support a sport fishery. The area is totally within the municipal watershed of Pound, Virginia. There are no other known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 99 percent of the area, or 4706 acres, is classified as suitable for timber production. In the past 10 years, no timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 4706 acres of suitable lands within this roadless area represents approximately 1.5 percent of all lands suitable for timber production on the Jefferson National Forest. Private subsurface minerals ownership is held on 926 acres within this area. The potential for energy minerals, primarily natural gas, is estimated to be high. Federal oil and gas leases have been issued in this area and other areas along the east slope of Pine Mountain since the 1980's. A Federal oil and gas lease, issued in 1984, covers approximately 3500 acres of the roadless area. The Federal oil and gas lease is in effect and is held by production of natural gas. Natural gas development, to date, has been on a portion of the gas field on nearby private land. The Federal oil and gas leaseholder plans to continue the development of the natural gas field onto the Federal lease area, within the roadless area, in the very near future. Tract J-1459, a 103 acre tract acquired by the Federal government in 1991, is not under Federal oil and gas lease. A 211 acre portion of Tract J-550a, in the northeast corner of the roadless area, was under Federal oil and gas lease, but the lease terminated. As of December 1999, this northeast corner of the roadless area is not currently under lease. The entire roadless area is located on the western fringe of the Southwest Virginia coal field. The potential for metallic minerals, or other Federal leasable minerals, is estimated to be low.

### CULTURAL RESOURCES

Approximately 20 acres have been surveyed for cultural resources, as of April 1998, within the roadless area. The Short Family Cemetery, a late 19th/early 20th century burial ground, was identified and recorded during this survey. The area does contain additional cemeteries and individual gravesites but these have not yet been recorded. Several rock shelters are located in the area, some of which have been subject to looting and vandalism. A comprehensive inventory of these rock shelters has not been completed. The area exhibits a high potential for additional historic and prehistoric resources.

### LAND USES

No special use permit authorizations have been issued for land uses in this roadless area. The owner of the federal oil and gas lease is expected to begin drilling for natural gas in the very near future.

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**MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)**

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands to the north and along portions of the western and southeastern boundaries. Wilderness designation may limit options for containing fires on private and/or federal lands. The North Fork of Pound roadless area is expected to be in the generally infested area for gypsy moth in about twenty years, assuming the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia., Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 80 percent of the area is composed of the Dry Mesic Oak ecological community type. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

NORTH MOUNTAIN ID NUMBER: 14507



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 8,320 |
| Private | 39 |
| Park Service | 0 |
| TOTAL | 8,359 |

### LOCATION, VICINITY, AND ACCESS

North Mountain roadless area is located on the Jefferson National Forest, New Castle Ranger District, Craig and Botetourt Counties, Virginia. The area is bounded by Forest Development Road (FDR) 224 to the north, VA 311 and private land to the west, a powerline to the east, and private land to the south. The area is found within U.S.G.S. Virginia Quadrangles Catawba and Looney. Major vehicular access is provided by VA 311 along the western end and FDR 224 along the northern end.

There is only one improved road in the area. There is a 1.25 mile road in the

southeast corner that accesses a private inholding on the crest of North Mountain. This road is not listed on the Forest Service Transportation Information System (TIS) records. Total improved road mileage is 1.25 miles.

There are no unimproved roads within the area. Total unimproved road mileage is 0.00 miles.

There are four developed trails within the area. Forest Development Trail (FDT) 263, North Mountain Trail, runs the length of the area along the ridgetop of North Mountain for 13.2 miles. Three other trails intersect FDT 263 and run north to FDR 224; FDT 186 (Deer Trail-1.6 miles), FDT 188 (Grouse Trail-1.5 miles), and FDT 187 (Turkey Trail-1.7 miles). The trails are open to foot, bicycle, and horse traffic. All four trails are utilized in a major mountain bicycle race each year (500+ riders). There are several illegal four-wheel drive and ATV roads that enter the area from private land along the southern boundary.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone or shale with parallel drainages with broad limestone valleys. Included in this area is North Mountain with a series of small, steep sideslope drains. Elevation ranges from approximately 1410 feet along VA 600 near the southeastern corner to 3062 feet along the crest of North Mountain.

Approximately 75 percent of the area is underlain by Silurian-aged sandstone, and 25 percent is underlain by Braillier and Martinsburg shale. Ridgetop and sideslope soils consist primarily of moderately deep, loamy-skeletal Typic Dystrochrepts (Dekalb and Berks series). Footslopes and benches are often Typic Fragiudults (Laidig series) or other more productive colluvial Hapludults. Drainages contain deep loamy-skeletal Typic-Hapludults and Dystrochrepts formed in colluvium from sandstone (Oriskany and Sherando series) or shale (Shelocta series).

Vegetation is mainly broadleaf deciduous species. Approximately 19 percent of the area has a site index of 70 or greater indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages, toeslopes, or along alluvial floodplains of small to medium sized streams. Here yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 81 percent of the area has a site index of 60 or below, indicating a moderate to

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low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as hiking and mountain biking along the four trails, as well as hunting and illegal ATV use. There are several wildlife clearings just south of FDR 224 totaling approximately 16 acres. Approximately 18 percent, or 1538 acres, are classified suitable for timber production within the area. Mineral rights are outstanding on approximately 60 acres.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 1.25 miles of improved road, within the roadless area, is visually evident and influences ecological processes, as a minimum, in the vicinity of the road. Many old access roads and logging roads still exist and are evident; however, lack of maintenance and use is allowing some of them to become overgrown and regain a more natural appearance. Other old roads are being kept open by frequent illegal ATV traffic, particularly in the southern end. Wildlife clearings are also evident.

Most of the area was logged and frequently burned in the early 1900's. The predominant age of timber in the area is 21-100 years old. Approximately 93 percent of the area is in the 21-100 year old age class, three percent is in the 11-20 year age class, three percent in the 101 plus years class and one percent is in the 0-10 year class. There are no acres of inventoried possible old growth.

### KEY ATTRACTIONS

The area is popular with hikers, mountain bikers, and hunters. Approximately 39 acres of the Dragons Tooth Trail/McAfee Knob Special Biological Area is found along the southwest boundary of this area. This area contains the globally rare shrub, piratebush. It also contains occurrences of the small spreading pogonia and sword-leaved phlox vascular plants and occurences of the orangefin madtom, a vertebrate animal.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. North Mountain roadless area appears to be natural but there are signs of recent disturbance. There are 41 acres of 0-10 year old age class and 282 acres of 11-20 age class. There are 1.25 miles of improved road and 18 miles of maintained trails within the area.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The North Mountain roadless area is 8,409 acres in size. Approximately 40 of those acres are within a private inholding in the center of the area. Landform consists of the ridgetop of North Mountain divided by a series of sideslope drainages. Elevations range from 1,410 feet along VA 600 near the southeastern corner to 3,062 feet along the crest of North Mountain. A solitude core area of 5,436 acres exists along the ridgetop of North Mountain. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The proportion of core acres of solitude to the roadless area is approximately 64 percent. There are 1.25 miles of improved road and four trails totaling 18 miles within the roadless area. Visitors feel like

they are in an unconfined, natural area. The area consists mainly of a northeast to southwest running ridgetop and most of the ridgetop's two sides. Due to the shape of this area, noise from the surrounding lands can be heard from most locations within this area (state highways, FS roads, private land). Activities on surrounding lands would be visible from most locations within this area, particularly the ridgetop and southeast flank. The highest level of noise is concentrated in the western end due to the close proximity of heavily used VA 311.

A major mountain bike race, with approximately 500 riders, has occurred in this area the last few years.

It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads. Within the area there are isolated and remote areas but there is also a degree of evidence of human impact (roads, wildlife clearings, past timber harvests). The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

North Mountain roadless area does present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as hunting, fishing, hiking, mountain biking and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

North Mountain roadless area is in the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Shawvers Run, Barbours Creek, Peters Mountain, Mountain Lake, Kimberling Creek, and Beartown. Within the Southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Barbours Creek Wilderness is the closest existing wilderness to this roadless area and is located approximately 10 air miles to the north.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridge tops. Shale and limestone are the bedrock on the lower slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area.

The majority of the area, approximately 56 percent, is in the Dry/Dry-Mesic Oak-Pine ecological community type. The Dry Mesic Oak type represents about 42 percent of the area while the Xeric Pine Pine-Oak type represents two percent. Other minor types represent less than one percent of the area.

CISC data indicates 53 acres of possible old growth in the Dry Mesic Oak forest type. However, recent field work in the area showed no actual inventoried possible old growth.

The sensitive plant, piratebush, occurs within the area. No other threatened, endangered, or sensitive species are known to occur within this area.

Approximately 92 percent of this area is classified as having High Scenic Integrity.

NORTH MOUNTAIN

#### SIZE, SHAPE, AND MANAGEABILITY

The North Mountain roadless area is a long ridgetop running northeast to southwest and includes most of the upper slopes on both sides of the mountain. The topography provides little opportunity for remote settings. From most locations within this area, one can observe activities occurring on private or other Forest Service land. Activities occurring on the 40 acre private inholding on the crest of North Mountain do have the potential to impact wilderness attributes. Additionally, a primitive road that accesses the private land may also affect any potential wilderness values. Most of the boundary follows property boundary lines and human improvements such as roads and powerlines. Surrounding lands are mostly private to the south and east and Forest Service to the north and west.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows features such as roads, powerlines, and property line boundaries. An offset from boundary roads, such as VA 311, would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, road alignment, etc.). An offset of approximately 300 feet from the centerline of existing roads is recommended. There are several wildlife clearings along FDR 224. An offset off from FDR 224 would include most of these clearings and allow for continuing maintenance activities should this area become wilderness.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. The four trails in the area receive a moderate amount of hiking and mountain biking use and a low amount of horse use. A mountain bike race on these trails has resulted in as many as 500 participants in past years. Other activities include hunting and illegal 4-wheel drive and ATV use.

#### WILDLIFE

The North Mountain roadless area provides habitat for diverse wildlife species. The featured species for the area is 68 percent turkey, and 31 percent deer. No threatened, endangered, or sensitive wildlife species are known to occur within the area.

#### WATER AVAILABILITY AND USE

The north and west side of North Mountain drains into Craig Creek, while the south and east side drains into Catawba Creek. There are no known water storage needs or any existing special use water permit authorizations. Water quality should remain at its current level whether or not the area is designated wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 18 percent, or 1,538 acres, is classified as suitable for timber production. In the last 10 years, approximately 40 acres of timber has been harvested. Several timber harvest projects were proposed in this roadless area in 1997. Proposed harvesting was to take place along FDR 224 and VA 618 along the northern boundary. Approximately 16 areas either partially or completely within the roadless area were part of the proposal. An environmental assessment was prepared and signed on October 17, 1997. An

appeal was accepted on December 17, 1997 and the original decision was reversed and sent back to the New Castle Ranger District. Timber harvest and the associated production of wood products from this area would be precluded by wilderness designation. The 1,538 acres of suitable lands in this roadless area represent approximately 0.5 percent of all lands suitable for timber production on the Jefferson National Forest. Approximately 41 acres of this area has mineral rights outstanding. There are no federal oil or natural gas leases within the area.

#### CULTURAL RESOURCES

To date, 563 acres of this roadless area have been surveyed for cultural resources. No prehistoric or historic sites have been identified. This area exhibits a low potential for prehistoric or historic resources.

#### LAND USES

Over the last few years, a special use permit authorization has been issued for a competitive mountain bike race held within the area. The landowner that owns the private inholding within the North Mountain area has a road right-of-way to access his property.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Fire suppression would be primarily by hand tools. Use of motorized and mechanized transport and equipment such as ATV's, bulldozers, and chainsaws would be allowed only upon specific approval by the appropriate line officer. Thus, wildfires would likely attain larger sizes than under current management. Wilderness designation may limit options for containing fires. Gypsy moth infestations are in the vicinity of this roadless area right now. Mortality can be severe (up to 25-30 percent) and oaks are the preferred hosts. There is also evidence of southern pine beetle activity in the western end of the area. Approximately 98 percent of the area is composed of the Dry Mesic Oak and Dry/Dry Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other National Forest or private land.

Portions of this roadless area are occupied by near pure stands of table mountain pine and/or pitch pine forest types. These pine-dominated stands occur primarily on southeast to southwest facing ridges and slopes with dry, well-drained soils. Table mountain pine has serotinous cones that usually require significant heat in the tree canopy from fire to open the cones, thus allowing for seed dispersal and regeneration. Other oak dominated forest types that contain a component of these pine species also occupy a large portion of this roadless area. If this area was designated wilderness, the use of management ignited prescribed fire to manipulate these fire dependent ecosystems for restoration and maintenance would likely not be allowed. This will result in further declines in acreage and the open structure of these forest types along with the flora and fauna these ecosystems support.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**PATTERSON MOUNTAIN**

PATTERSON MOUNTAIN ID NUMBER: 14506

## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 4,862 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 4,862 |

### LOCATION, VICINITY, AND ACCESS

Patterson Mountain roadless area is located on the Jefferson National Forest, New Castle Ranger District, Botetourt County, Virginia. The area is bounded by private land to the west and Forest Development Roads (FDR) 184 and 5020 to the east. The area is found within portions of the U.S.G.S. Virginia Quadrangles Strom and Oriskany. Major vehicular access is provided by FDR's 184 and 5020 along the eastern boundary of the area.

There is one improved road within the area. FDR 5016 enters the area from FDR 184 and runs north and east for 1.7 miles. Total improved road mileage is 1.7 miles.

One unimproved road is located within the roadless area boundary. FDR 5015 enters the area from FDR 184 and runs eastward for 1.0 mile. Total unimproved road mileage is 1.0 mile.

Five Forest Development Trails (FDT) access the area that provide a series of hiking loop opportunities. The Patterson Mountain Trail (FDT 148) follows the crest of Patterson Mountain for approximately 5.9 miles. The Tucker Trail (FDT 191) is 1.0 miles in length and climbs from FDR 515 northward to FDT 148. The Helms Trail (FDT 181, 1.0 miles), Elmore Trail (FDT 151, 1.3 miles), and Loop Trail (FDT 153, 1.5 miles) are located within the central portion of the roadless area. All five trails are foot only trails that receive a low amount of use.

### GEOGRAPHY, TOPOGRAPHY AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/ southwest trending ridges of sandstone or shale with parallel drainages with broad limestone valleys. Included in this area is Patterson Mountain with a series of small, steep sideslope drainages. Elevation ranges from approximately 1133 feet at the beginning of the Elmore Trail along FDR 184 to 2250 feet at a point along the crest of Patterson Mountain.

Approximately 75 percent of the area is underlain by Silurian-aged sandstone, and 25 percent is underlain by Braillier and Martinsburg shale. Ridgetop and sideslope soils consists of mostly moderately deep, loamy-skeletal Typic Dystrochrepts (Dekalb and Berks series). Footslopes and benches are often Typic Fragiudults (Laidig series) or other more productive colluvial Hapludults. Drainages contain deep loamy-skeletal Typic-Hapludults and Dystrochrepts formed in colluvium from sandstone (Oriskany and Sherando series) or shale (Shelocta series).

Vegetation is mainly broadleaf deciduous species. Approximately six percent of the area has a site index of 70 or greater indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages, toeslopes, or along alluvial flood plains of small to medium sized streams. Here yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 94 percent of the area has a site index of 60 or below, indicating a moderate to poor productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak,

and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as hiking and hunting. Approximately 21 percent, or 1020 acres, is classified as suitable for timber production within the area. All minerals are owned by the U.S.A. There are no federal oil or gas leases within the area. A 10 acre tract in the northwest corner is under a special use permit authorization for a private water supply. There are approximately three acres of maintained wildlife clearings in the area.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 2.7 miles of improved and unimproved roads, as well as the 10.7 miles of maintained trails in the roadless area, are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads and trails. Other old access roads and logging roads still exist and are evident; however, lack of maintenance and use is allowing some of them to become overgrown and regain a more natural appearance. Other old roads are being kept open by frequent illegal ATV traffic.

Most of the area was logged and frequently burned in the late 1800's and early 1900's. Approximately 93 percent of the timber is in the 21-100 year old age class. About three percent is in the 0-10 year age class, one percent in the 11-20 year age class, and three percent is in the 101 plus years age class.

The Patterson Mountain OHV trail system is directly adjacent to the eastern boundary of the area. Large tracts of other National Forest land generally bound the area to the east, south, and west. A mix of private and National Forest land bounds the area to the north

#### KEY ATTRACTIONS

The area is popular with hunters and the extensive trail system in the area receives most of its use during fall hunting season. There are good scenic views from the Patterson Mountain Trail as the trail winds its way along the crest of Patterson Mountain. The rare Virginia white-haired leatherflower is known to occur in this area within the Central Appalachian Shale Barrens found there. The orangefin madtom also has been found in numerous occurrences in this roadless area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Patterson Mountain roadless area appears to be natural but there are signs of recent disturbance. There are 153 acres of timber in the 0-10 year age class and 39 acres in the 11-20 year age class within this roadless area. There is a 1.7 mile long improved road, a 1.0 mile long unimproved road, and 10.7 miles of maintained trail within the area.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Patterson Mountain roadless area is 4,863 acres in size and is located entirely on National Forest land. Landform consists of the ridgetop of Patterson Mountain divided by a series of sideslope drainages. Elevations range from 1,133 feet at the beginning of the Elmore Trail along FDR 184 to 2,250 feet at a point along the crest of Patterson Mountain.

PATTERSON MOUNTAIN

A solitude core area of 2,377 acres exists in the center of this area along the ridgetop of Patterson Mountain. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The proportion of core acres of solitude of the roadless area is approximately 49 percent. There is one improved road totaling 1.7 miles, one unimproved road totaling 1.0 miles and five maintained trails totaling 13.1 miles. Visitors feel like they are in an unconfined, natural area. Noise from the surrounding lands can be heard along the boundary from state highways, Forest roads, and from activities associated with private land. The eastern end of the area is adjacent to the Patterson Mountain OHV trail system.

It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads. Within the area, there are isolated and remote areas but there is a degree of evidence of human impact (roads, wildlife clearings, past timber harvests). The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Patterson Mountain roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, hiking, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Patterson Mountain is in the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Shawvers Run, Barbours Creek, Peters Mountain, Mountain Lake, Kimberling Creek, and Beartown. Within the Southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Barbours Creek Wilderness is the closest existing wilderness to this roadless area and is located approximately 7.0 air miles to the west.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridge tops. Shale and limestone are the bedrock on the lower slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area.

Approximately 80 percent of the area is in the Dry/Dry-Mesic Oak-Pine ecological community type with another 16 percent in the Dry Mesic Oak type. The Xeric Pine/Pine-Oak type accounts for the remaining four percent.

There are 92 acres of inventoried possible old growth in the Dry/Dry-Mesic Oak-Pine ecological community type (0 acres suitable), which represents 1.9 percent of the Forest's total for this ecological community type.

Patterson Mountain roadless area contains the sensitive Virginia white-haired leatherflower.

Approximately 82 percent of the area is classified as having High Scenic Integrity.

#### SIZE, SHAPE, AND MANAGEABILITY

The Patterson Mountain roadless area is along ridgetop running northeast to southwest.

The roadless area has this ridge as the core of the area and also includes the slopes on both sides. The topography provides little opportunity for remote areas. From most locations within this area, one can see activities occurring on private land or other Forest Service areas. Directly south of Patterson Mountain roadless area is Price Mountain roadless area. Only FDR 184 separates the two areas. Most of the boundary follows property boundary lines and human improvements such as roads. Surrounding lands are primarily private in ownership to the north and National Forest to the south, west, and east. The private land near this area does have the potential to impact wilderness attributes.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows human made features such as roads and property line boundaries. An offset from boundary roads such as FDR 184 would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, road alignment, etc.). An offset of approximately 100 feet from the centerline of existing roads is recommended. The Patterson Mountain ATV area is adjacent to the northeast corner of this area. In this area, the boundary of the roadless area will be more difficult to mark as it primarily follows ridges and drainages.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. The main attraction to the area are the numerous hunting opportunities the area presents. The area also has 10.7 miles of hiking trails.

#### WILDLIFE

The Patterson Mountain roadless area provides habitat for diverse wildlife species. The featured species for the area is 61 percent turkey, 36 percent deer, and three percent gray squirrel. No threatened, endangered, or sensitive wildlife species are known to occur within this roadless area.

#### WATER AVAILABILITY AND USE

The north and west sides of Patterson Mountain roadless area drain directly into Craig Creek. The south and east sides drain into Patterson Creek and ultimately Craig Creek. There is a special use permit authorization for a 10 acre area near the northern end of the area that is used as a water supply for a private landowner. There are no other known water storage needs or existing special use water permits. Water quality should remain at its current level whether or not the area is designated wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 21 percent, or 1,020 acres, is classified as suitable for timber production. In the last 10 years, approximately 153 acres of timber has been harvested in this area. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 1,020 acres of suitable lands in this roadless area represent 0.3 percent of all lands suitable for timber production on the Jefferson National Forest. All minerals are owned by U.S.A. There are no federal oil or gas leases within the area.

#### CULTURAL RESOURCES

As of March, 1998, 263 acres have been surveyed for cultural resources. There are nine

PATTERSON MOUNTAIN

inventoried transient camps believed to have been used prior to 1,000 B.C. within the Patterson Mountain roadless area. This area exhibits a low potential for additional prehistoric and historic resources.

#### LAND USES

There is a special use permit authorization for a 10 acre area near the northern end of the area that is used as a domestic water supply.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Fire suppression would be primarily by hand tools. Use of motorized and mechanized transport and equipment such as ATV's, bulldozers, and chainsaws would be allowed only upon specific approval by the appropriate line officer. Thus, wildfires would likely attain larger sizes than under current management. Wilderness designation may limit options for containing fires. Gypsy moth infestations are in the vicinity of this roadless area right now. Mortality can be severe (up to 25-30 percent) and oaks are the preferred hosts. Approximately 96 percent of the area is composed of the Dry Mesic Oak type and Dry/Dry Mesic Oak Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other National Forest or private land.

Portions of this roadless area are occupied by near pure stands of table mountain pine and/or pitch pine forest types. These pine-dominated stands occur primarily on southeast to southwest facing ridges and slopes with dry, well-drained soils. Table mountain pine has serotinous cones that usually require significant heat in the tree canopy from fire to open the cones, thus allowing for seed dispersal and regeneration. Other oak dominated forest types that contain a component of these pine species also occupy a large portion of this roadless area. If this area was designated wilderness, the use of management ignited prescribed fire to manipulate these fire dependent ecosystems for restoration and maintenance would likely not be allowed. This will result in further declines in acreage and the open structure of these forest types along with the flora and fauna these ecosystems support.

#### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

PETERS MOUNTAIN WILDERNESS ADDITION A ID NUMBER: 14102



## Overview

* These acres were purchased by the National Park Service for the benefit of the Appalachian National Scenic Trail and are managed by the Forest Service under a Memorandum of Understanding.

| Surface Ownership | Acres |
|---|---|
| Forest Service | 1,296 |
| Private | 0 |
| Park Service | 275 |
| TOTAL | 1,570 |

### LOCATION, VICINITY, AND ACCESS

The Peters Mountain Wilderness Addition A roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Giles County, Virginia and Monroe County, West Virginia. The area is located primarily on the southside of Peters Mountain and is found within a portion of U.S.G.S. Virginia-West Virginia Quadrangle Interior. The area is generally bounded by Peters Mountain to the north, Peters Mountain Wilderness to the east, Forest Development Road 11080 (Mystery Ridge Road) and a large tract of National Forest land to the west, and a combination of VA 635 and private land to the south. Major vehicle access is provided by VA 635 from the southeast.

There are no improved or unimproved roads within the area; however, there are several old access and logging roads scattered throughout the area. Some are becoming overgrown and impassible to anything but foot traffic.

There are two Forest Development Trails (FDT) within the area. Approximately 4.9 miles of the Appalachian National Scenic Trail (FDT 1) traverses along the crest of Peters Mountain from Symms Gap northeast to Pine Swamp Ridge before heading south into Peters Mountain Wilderness. About 0.35 miles of the Groundhog Trail (FDT 65), a connector trail to the Appalachian National Scenic Trail, enters the area from the north side of Peters Mountain. A short segment of the Allegheny Trail (FDT 701) is located in the extreme northeast corner of the roadless area. This trail terminates at its intersection with the Appalachian National Scenic Trail.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Peters Mountain Wilderness Addition A roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone or shale with parallel drainages interspersed with broad limestone valleys. Included in this area is Peters Mountain. Slopes vary from very steep on sideslopes to gentle in the larger drainages. Drainage density is moderate. The area contains the headwaters of several tributaries that flow into Stony Creek, a major stream to the south of the roadless area. Elevation ranges from approximately 1950 feet adjacent to VA 635 and Stony Creek to 3956 feet at a point along the crest of Peters Mountain in the extreme northeastern corner of the area.

The roadless area is forested by eastern deciduous and coniferous species. Approximately 33 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, white pine, and red maple dominate the overstory. The remaining 67 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

PETERS MOUNTAIN WILDERNESS ADDITION A

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as hiking, hunting, and primitive camping. Approximately 32 percent, or 486 acres, of the area are classified as suitable for timber production. There are outstanding mineral rights on 504 acres within the area. There are no federal oil or gas leases within the area.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 5.25 miles of maintained trail and several of the old access and logging roads are visually evident and influence natural processes in the their vicinity. Some old roads are becoming overgrown and are regaining a more natural appearance. Some four-wheel drive and ATV traffic occurs along the private road that is coincident with the Allegheny Trail in the extreme northeastern portion of the roadless area.

Much of the area was logged and frequently burned in the late 1800's and early 1900's. All of the timber is in the 21-100 year old age class. The area contains no possible inventoried old growth.

Featured species for 98.5 percent of the area is bear and 1.5 percent is turkey. Turkey is featured in one small area in the extreme southwestern corner. There are no wildlife openings or recently seeded roads in this roadless area.

The roadless area adjoins the western and most of the northern boundary of Peters Mountain Wilderness. Land north of the boundary is primarily in private ownership with a small section of federal land running down the north side of Peters Mountain to WV 219 and 24. A large block of National Forest land adjoins the western boundary of the roadless area. A mix of National Forest, private land, and VA 635 comprise the southern boundary. The adjoining private land is comprised of forest land, woodlots, farmland, and several residences and outbuildings.

#### KEY ATTRACTIONS

The area is popular with hunters and hikers. Peters Mountain Wilderness adjoins the roadless area and Mountain Lake Wilderness is located several miles to the east. There are no known federally threatened, endangered, or sensitive species within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is somewhat affected by outside forces. Much of the Peters Mountain Wilderness Addition A roadless area appears to be natural but there are signs of disturbance. There are approximately 5.25 miles of maintained trail and several old access and logging roads evident. There are no acres of 0-10 year old age class within the area. The overall influence of human activities to the interior of the area is minimal, primarily due to the topography.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Peters Mountain Wilderness Addition A roadless area is 1,588 acres in size of which 1,292 acres are within the proclaimed boundary of the Jefferson National Forest. The remaining 296 acres are outside the proclamation boundary. These acres were purchased by the National Park Service for the benefit of the Appalachian National Scenic Trail and are managed by the Forest Service under a Memorandum of Understanding. The crest of Peters Mountain is generally the northern boundary of the

area. Mystery Ridge forms the western boundary while the Peters Mountain Wilderness forms the eastern boundary. The southern boundary follows private property boundaries and VA 635. Elevations range from approximately 1950 feet adjacent to VA 635 to 3956 feet at a point along the crest of Peters Mountain. A solitude core area of 1,260 acres exists in most of the area except for an area along the southern boundary. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The ratio of core acres of solitude to the roadless area is approximately 80 percent. If this roadless area were added to the existing wilderness, the core area size would represent a much higher percentage. When combined with the existing wilderness, visitors feel like they are in an unconfined, natural area. Visitor use of the area can be described as low to moderate. The area receives a moderate level of use during hunting season. The further one gets away from roads and the periphery of the area, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance. However, some peripheral portions of the area may be impacted by noises and sights associated with traffic on State and Forest Service roads, or activities from adjoining private land, which may reduce the feeling of solitude and isolation. A lime plant, and associated quarry, is located approximately one mile south of the roadless area in Goldbond. A constant "hum" and "thumping" noise from the plant is audible within the area when the plant is in operation. The area is also under the flight path used by the US military for low level altitude training missions.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. The level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Peters Mountain Wilderness Addition A roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Opportunities for activities such as hunting, hiking, and primitive camping are present in the area.

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Peters Mountain Wilderness Addition A roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (1,588 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridge tops. Shale and limestone are the bedrock on the lower slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area. The area's large relief and highly dissected topography creates a wide range of ecological types from hot, dry windswept ridgetops to cool, moist, protected coves.

The vast majority of the area, approximately 94 percent, is in the Dry Mesic Oak ecological community type. The Dry and Dry-Mesic Oak-Pine type represents six percent of the area.

PETERS MOUNTAIN WILDERNESS ADDITION A

The area has no inventoried possible old growth.

There are no known threatened, endangered, or sensitive species within the area.

The entire area is classified as having High to Very High Scenic Integrity.

The eastern boundary of the roadless area runs coincident with Peters Mountain Wilderness. Mountain Lake Wilderness is located approximately 9.0 air miles to the east of the roadless area.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Peters Mountain Wilderness Addition A roadless area makes its preservation as potential wilderness practical. The eastern boundary of the area adjoins the existing Peters Mountain Wilderness and would increase the size of the wilderness from 3,328 acres to approximately 4,896 acres. Portions of the remaining boundary follow existing property line boundaries or roads. Adjoining private lands to the north and southwest contrast somewhat with the area, but the effects are generally limited to the periphery along the boundary of the roadless area. There are no outstanding mineral rights within the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service boundary lines and roads delineate approximately three-fourths of the roadless area boundary. An offset from VA 635 would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.). An offset of 300 feet from the centerline of VA 635 would be recommended. This is the same as that established for Peters Mountain Wilderness.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hunting, hiking, and dispersed camping use are the major recreation attractions to the area. Peters Mountain Wilderness is located immediately adjacent to the roadless area. Mountain Lake Wilderness is located approximately 9.0 air miles to the east.

#### WILDLIFE

The Peters Mountain Wilderness Addition A roadless area provides habitat for a diversity of wildlife species. Featured species of the area is 98 percent bear and two percent turkey. There are no known threatened, endangered, or sensitive wildlife species within the area.

#### WATER AVAILABILITY AND USE

The roadless area contains the headwaters of several tributaries that flow into Stony Creek, a major stream to the south of the roadless area. There are no known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 32

percent of the area, or 486 acres, is classified as suitable for timber production. No timber harvest has taken place in the past 10 years; however, future timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 486 acres of suitable lands within this roadless area represents approximately 0.2 percent of all lands suitable for timber production on the Jefferson National Forest. There are outstanding mineral rights on 504 acres within the area. There are no federal oil or gas leases within the area.

#### CULTURAL RESOURCES

No cultural resource surveys have been conducted to date within the area. The area exhibits a low potential for prehistoric and historic resources.

#### LAND USES

No special use permit authorizations have been issued for land uses in this roadless area.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Fire suppression would be primarily by hand tools. Use of motorized and mechanized transport and equipment such as ATV's, bulldozers, and chainsaws would be allowed only upon specific approval by the appropriate line officer. Thus, wildfires would likely attain larger sizes than under current management. The roadless area is bounded by private lands to the north and southwest section of the area. Wilderness designation may limit options for containing fires on private and/or federal lands. The Peters Mountain Wilderness Addition A roadless area is expected to be in the generally infested area for gypsy moth in the next five to ten years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 100 percent of the area is composed of the Dry Mesic Oak and Dry and Dry-Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**PETERS MOUNTAIN WILDERNESS ADDITION B**

PETERS MOUNTAIN WILDERNESS ADDITION B ID NUMBER: 14103

## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 2,903 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 2,903 |

### LOCATION, VICINITY, AND ACCESS

The Peters Mountain Wilderness Addition B roadless area is located on the Jefferson National Forest, New River Valley Ranger District, Giles County, Virginia. The area is located on the southside of Peters Mountain and is found within a portion of U.S.G.S. Virginia-West Virginia Quadrangle Interior. The area is bounded by Peters Mountain to the north, Peters Mountain Wilderness to the west, a large tract of National Forest land to the east, and a combination of National Forest and private lands to the south. Major vehicle access is provided by VA 722 from the south and VA 613 to Forest Development Road (FDR) 10412 from the east. Several other FDR's are within a short hiking distance from the roadless area boundary: FDR 10401 through Kelly Flats to the south, FDR's 10441 and 10373 from the east, and FDR 945 from the extreme northeast.

There are no improved or unimproved roads within the area; however, there are numerous old access and logging roads scattered throughout the area. Some are becoming overgrown and impassible to anything but foot traffic.

There are two Forest Development Trails (FDT) within the area. A 3.25 mile segment of the Flat Peter Trail (FDT 52), designated for foot traffic only, traverses the roadless area paralleling North Fork in the central portion of the area before heading west along Dixon Branch and entering Peters Mountain Wilderness. Portions of the Allegheny Trail (FDT 701) winds in and out of National Forest and private land along the crest of Peters Mountain. Approximately 1.3 miles of this trail are located within the roadless area boundary. This trail is also a private road that accesses private property and receives ATV use.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, the Peters Mountain Wilderness Addition B roadless area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone or shale with parallel drainages interspersed with broad limestone valleys. Included in this area are Peters Mountain, Fork Mountain, and Huckleberry Ridge. Slopes vary from very steep on sideslopes to nearly flat in the large drainages. Drainage density is moderate. The area contains the headwaters and numerous tributaries of several streams that flow into Stony Creek, including North Fork and Dixon Branch. Elevation ranges from approximately 2590 feet adjacent to VA 722 in the southeastern section of the area to 3881 feet at a point along the crest of Peters Mountain.

The roadless area is forested by eastern deciduous and coniferous species. Approximately 33 percent of the area has a site index of 70 or greater, indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages or toeslopes or along alluvial floodplains of small to medium sized streams where yellow poplar, northern red oak, white oak, basswood, cucumbertree, white ash, eastern hemlock, white pine, and red maple dominate the overstory. The remaining 67 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on

the driest sites.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as hiking, hunting, and primitive camping. The ranger district has proposed a major reconstruction of the Flat Peter Trail. That portion of the trail traversing the roadless area interior would require power excavating equipment to complete the project. No date has been scheduled for this work as of October 1998. Approximately 36 percent, or 1,032 acres, of the area are classified as suitable for timber production. There are no outstanding mineral rights or federal oil or natural gas leases within the area.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 4.55 miles of maintained trail and many of the old access and logging roads are visually evident and influence ecological processes, as a minimum, in the vicinity of the trails and roads. Some are becoming overgrown and are regaining a more natural appearance. Some 4-wheel and ATV traffic occurs along the private road that is coincident with the Allegheny Trail along the crest of Peters Mountain.

Most of the area was cut over and frequently burned in the late 1800's and early 1900's. Approximately 99.8 percent of the timber is in the 21-100 year old age class and the remaining 0.2 percent is in the 11-20 year age class. The area has 40 acres of possible inventoried old growth.

Featured species for the area is 99+ percent bear and less than one percent grouse. There are no wildlife openings or recently seeded roads in this roadless area.

The roadless area adjoins the eastern boundary of the Peters Mountain Wilderness. Land north of the boundary is in private ownership. Intensively managed National Forest lands adjoin the eastern boundary of the roadless area. A mix of National Forest and private lands comprise the southern boundary. This area includes the Kelly Flats area where intensive management practices have, and continue to, be implemented in an effort to restore a pitch pine/grassland ecological community unique to the area. The adjoining private land is comprised of woodlots, farmland, and several residences and outbuildings.

#### KEY ATTRACTIONS

The area is popular with hunters and hikers. Peters Mountain Wilderness adjoins the roadless area and Mountain Lake Wilderness is located several miles to the east. There are no federally threatened, endangered, or sensitive species within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the Peters Mountain Wilderness Addition B roadless area appears to be natural but there are signs of disturbance. There are approximately 4.55 miles of maintained trail and numerous old access and logging roads that are evident. The Allegheny Trail winds in and out of the area along the northern boundary. The trail is also used to access private property by motorized means. There are no acres of 0-10 year old age class within the area. The overall influence of human activities to the interior of the area is minimal, primarily due to the area's challenging topography. Areas that bound private property are more subject to human activity and disturbance.

PETERS MOUNTAIN WILDERNESS ADDITION B

### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Peters Mountain Wilderness Addition B roadless area is 2,906 acres in size. All but three acres are on National Forest land. The crest of Peters Mountain is generally the northern boundary of the area. Fork Mountain bisects the Eastern portion of the area, while Huckleberry Ridge bisects the eastern portion. The southern boundary follows private property boundaries or connects with adjacent National Forest lands. Elevations range from approximately 2590 feet adjacent to VA 722 to 3881 feet at a point along the crest of Peters Mountain. A solitude core area of 2,172 acres exists in the central and northern portions of the roadless area, of which 510 acres are Semi-Primitive Motorized and 1,662 acres are Semi-Primitive Non-Motorized. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The proportion of core acres of solitude to the roadless area is approximately 75 percent. If this roadless area were added to the existing wilderness, the core area size would represent a much higher percentage. When combined with the existing wilderness, visitors feel like they are in an unconfined, natural area. Visitor use of the area can be described as low to moderate. The area receives a moderate level of use during hunting season. The further one gets away from roads and the periphery of the area, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance. However, some peripheral areas may be impacted around by noises and sights associated with traffic on State and Forest Service roads, or activities from adjoining private land, which may reduce the feeling of solitude and isolation. The area also lies directly under a flight path that the US military utilizes for low level altitude training missions.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads and trails. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Peters Mountain Wilderness Addition B roadless area does present a range of dispersed recreational activities, which are typically found on the Jefferson National Forest. Activities such as hunting, hiking, and primitive camping are present in the area.

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Peters Mountain Wilderness Addition B roadless area is within the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section (2,906 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Beartown, Kimberling Creek, Peters Mountain, Mountain Lake, Barbours Creek, and Shawvers Run. Within the southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridge tops. Shale and limestone are the bedrock on the lower slopes.

here are no designated Research Natural Areas or Experimental Forests within the roadless area. The area's large relief and highly dissected topography creates a wide range of ecological types from hot, dry windswept ridgetops to cool, moist, protected coves.

The vast majority of the area, approximately 82 percent, is in the Dry Mesic Oak ecological

community type. Ten percent is in the Dry and Dry-Mesic Oak-Pine type, seven percent in the Mixed-Western Mesophytic type, and less than one percent in the Xeric Pine/Pine-Oak ecological community types.

There are 40 acres of inventoried possible old growth. The ecological community types represented are: 25 acres Dry Mesic Oak (14 acres suitable) which represents 0.08 percent of the Forest's total and 19 acres Xeric Pine and Pine-Oak (0 acres suitable) which represents 2.1 percent of the Forest's total.

There are no known threatened, endangered, or sensitive species within the area.

Approximately 94 percent of the area is classified as having High Scenic Integrity.

The western boundary of the roadless area runs coincident with Peters Mountain Wilderness. Mountain Lake Wilderness is located approximately 2.4 air miles to the east-southeast of the roadless area.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of Peters Mountain Wilderness Addition B roadless area makes its preservation as potential wilderness practical. The western boundary of the area adjoins the existing Peters Mountain Wilderness and would increase the size of the wilderness from 3,328 acres to approximately 6,234 acres. Portions of the remaining boundary follow existing property line boundaries or roads. It is recommended that the roadless boundary be shifted to the southside of the Allegheny Trail and private road on the crest of Peters Mountain to avoid conflicts with motorized vehicles and activities on private property. The roadless area was designed and shaped to avoid intensively managed areas to the east and south. Adjoining private lands along the southeastern corner contrast somewhat with the area, but the effects are generally limited to the periphery along the boundary of the roadless area. There are no outstanding mineral rights within the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Forest Service boundary lines and roads delineate approximately one-half of the roadless area boundary. An offset from State and Forest Service maintained roads would enhance wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, etc.). An offset of 300 feet from the centerline of State Roads and 100 feet from Forest Service maintained roads is recommended. Defining the on-the-ground boundary where the roadless area adjoins other National Forest land will be time consuming and expensive, particularly in areas along the eastern and southwestern boundaries. Re-adjusting the northern boundary to follow the south side of the Allegheny Trail and private road, where they cross National Forest land, would require minimal effort.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hunting, hiking, and dispersed camping use are the major recreation attractions to the area. Peters Mountain Wilderness is located immediately adjacent to the roadless area. Mountain Lake Wilderness is located approximately 2.4 air miles to the east-southeast.

#### WILDLIFE

The Peters Mountain Wilderness Addition B roadless area provides habitat for a diversity of wildlife species. Featured species of the area is 99+ percent bear and less than one

PETERS MOUNTAIN WILDERNESS ADDITION B

percent grouse. There are no known threatened, endangered, or sensitive wildlife species within the area.

### WATER AVAILABILITY AND USE

The roadless area encompasses the headwaters and numerous tributaries of several streams that flow into Stony Fork, including North Fork and Dixon Branch. There are no known water storage needs or any existing special use water permit authorizations. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 36 percent of the area, or 1,032 acres, is classified as suitable for timber production. No timber harvest has taken place in the past 10 years; however, future timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 1,032 acres of suitable lands within this roadless area represents approximately 0.3 percent of all lands suitable for timber production on the Jefferson National Forest. There are no outstanding mineral rights or federal oil or natural gas leases within the area.

### CULTURAL RESOURCES

Approximately 1,028 acres have been surveyed for cultural resources, as of March 1998, within the roadless area. One prehistoric transient camp has been identified. An historic late 19th-early 20th century railroad and train wreck are also identified within the area. The area exhibits a moderate to high potential for additional prehistoric and historic resources.

### LAND USES

No special use permit authorizations have been issued for land uses in this roadless area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Fire suppression would be primarily by hand tools. Use of motorized and/or mechanized equipment and transport such as ATV's, bulldozers, and chainsaws would be allowed only upon specific approval by the appropriate line officer. Thus, wildfires would likely attain larger sizes than under current management. The roadless area is bounded by private lands to the north and southeast section of the area. Wilderness designation may limit options for containing fires on private and/or federal lands. The Peters Mountain Wilderness Addition B roadless area is expected to be in the generally infested area for gypsy moth in the next five to ten years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed stands can be severe (up to 25-30 percent) following a first defoliation and oaks are the preferred hosts. Approximately 92 percent of the area is composed of the Dry Mesic Oak and Dry and Dry-Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chance that they may spread to other National Forest land and/or private land.

**Need**

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**PRICE MOUNTAIN**

PRICE MOUNTAIN ID NUMBER: 14507

| Surface Ownership | Acres |
|---|---|
| Forest Service | 9,114 |
| Private | 7 |
| Park Service | 0 |
| TOTAL | 9,121 |

## Overview

### LOCATION, VICINITY, AND ACCESS

Price Mountain roadless area is located on the Jefferson National Forest, New Castle Ranger District, Botetourt and Craig Counties, Virginia. The area is bounded by Forest Development Road (FDR) 184 to the north and west, VA 606 to the south, and private land to the east. The area is found within portions of the U.S.G.S. Virginia Quadrangles Oriskany and Salisbury. Major vehicular access is provided by VA 606 along the southern end and FDR 184 along the western and northern ends.

There are two improved roads in the area. FDR 267 enters the area from VA 606 and runs northeastward for 4.25 miles on the south slope of Switzer Mountain. FDR 5017, 1.2 miles in length, spurs off of FDR 267 and parallels Kelly Hollow. This road accesses a seven acre private inholding. Total improved road mileage is 5.45 miles.

There are two unimproved roads within the area: FDR 5013 - 0.8 miles and FDR 5014 - 0.4 miles. Both are gated roads that lead off from FDR 184 in the western end of the area. Total unimproved road mileage is 1.2 miles.

There are three developed trails within the area. Forest Development Trail (FDT) 334, Price Mountain Trail, runs the length of the area along the ridgetop of Price Mountain for approximately 10 miles and is open to hiking and horseback riding. Two other trails intersect FDT 334 and run north down the slope of Price Mountain: FDT 149 (Sulphur Ridge Trail-3.0 miles) and FDT 182 (Kelly Trail-1.5 miles). Both trails are open to hiking. All three trails receive a low amount of use.

### GEOGRAPHY, TOPOGRAPHY AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/ southwest trending ridges of sandstone or shale with parallel drainages with broad limestone valleys. Included in this area is Price Mountain with a series of small, steep sideslope drains. Elevation ranges from approximately 1091 feet along FDR 184 near the northern tip of the area to 2720 feet at a point along the crest of Price Mountain.

Approximately 75 percent of the area is underlain by Silurian-aged sandstone, and 25 percent is underlain by Braillier and Martinsburg shale. Ridgetop and sideslope soils consists primarily of moderately deep, loamy-skeletal Typic Dystrochrepts (Dekalb and Berks series). The lowerslopes and benches are often Typic Fragiudults (Laidig series) or other more productive colluvial Hapludults. Drainages contain deep loamy-skeletal Typic-Hapludults and Dystrochrepts formed in colluvium from sandstone (Oriskany and Sherando series) or shale (Shelocta series).

Vegetation is mainly broadleaf deciduous species. Approximately 17 percent of the area has a site index of 70 or greater indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages, toeslopes, or along alluvial flood plains of small to medium sized streams. Here, yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 82 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak,

and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring in the driest sites. Approximately 341 acres along the crest and north side of Switzer Mountain are classified as unproductive land.

#### CURRENT USE

The area is primarily used for dispersed recreational activities such hunting and hiking along the trails, as well as illegal ATV use. Approximately 26 percent, or 2393 acres, are classified suitable for timber production within the area. Mineral rights are all owned by the U.S.A. There are no federal oil or gas leases within the area.

The U.S. military conducts regular training flights over this area.

The Forest Service possesses a right-of-way for a parking lot adjacent to VA 684. A foot trail leading a short distance from this parking lot provides access to the eastern end of the area.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 5.45 miles of improved road, 1.2 miles of unimproved road, and 14.5 miles of maintained trail in the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads and trails. Many old access roads and logging roads still exist and are evident; however, lack of maintenance and use is allowing some of them to become overgrown and regain a more natural appearance. Other old roads are being kept open by frequent illegal ATV traffic.

Most of the area was logged and frequently burned in the late 1800's and early 1900's. Approximately 89 percent of the timber is in the 21-100 year old age class, six percent is in the 101 plus years age class, three percent in the 11-20 year class, and two percent is in the 0-10 year old age class.

The northern portion of the area is primarily bounded by a large block of National Forest land. The eastern and western portions of the area are bounded by a mix of private and National Forest ownership while private land abuts the roadless area to the south.

#### KEY ATTRACTIONS

Activities associated with hunting and hiking are key attractions to the area. The sensitive Virginia white-haired leatherflower is known to occur in this area. This species is globally rare. The orangefin madtom has been found in several occurrences in this roadless area. There are no known federally listed threatened, endangered or sensitive species within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is somewhat affected by outside forces. Price Mountain roadless area appears to be natural except where evidence indicates recent disturbance. There are approximately 175 acres of 0-10 year age class and 274 acres in the 11-20 year age class within the area. There are also 5.45 miles of improved roads, 1.2 miles of unimproved roads, and 14.5 miles of maintained trail within this roadless area.

PRICE MOUNTAIN

### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Price Mountain roadless area is 9,121 acres in size. Approximately seven of those acres are within a private inholding in the center of the area. Landform consists of the ridgetop of Price Mountain, Sulphur Ridge and Switzer Mountain. These ridgetops are divided by a series of sideslope drainages. A number of larger drainages separate these ridges. Kelly Hollow and Little Patterson Creek are drainages between Price Mountain and Switzer Mountain. Elevations range from 1,091 feet along FDR 184 near the northern tip of the area to 2,720 feet at a point along the crest of Price Mountain. A solitude core area of 4,629 acres exists in the center of the Price Mountain roadless area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The proportion of core acres of solitude of the roadless area is approximately 51 percent. There are 5.45 miles of improved roads and 1.2 miles of unimproved roads within the area. There are three developed trails within the roadless area totaling 14.5 miles. Visitors generally feel like they are in an unconfined, natural area. Noise from the surrounding lands can be heard along the boundary of the area (state highways, Forest Service roads and private land). Additionally, this area is frequently flown over by U.S. military jets on training missions.

It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads. Within the area there are isolated and remote areas but there is a degree of evidence of human impact (roads, wildlife clearings, past timber harvest). The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Price Mountain roadless area does present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as hunting, hiking, and primitive camping are present in the area.

### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Price Mountain roadless area is in the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Shawvers Run, Barbours Creek, Peters Mountain, Mountain Lake, Kimberling Creek, and Beartown. Within the Southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Barbours Creek Wilderness is the closest existing wilderness to this roadless area and is located approximately 7 air miles to the northwest.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridge tops. Shale and limestone are the bedrock on the lower slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area.

Approximately 52 percent of the area is in the Dry/Dry-Mesic Oak-Pine ecological community type, 24 percent is in the Xeric Pine and Pine-Oak type, and 23 percent is in the Dry Mesic Oak type. The Mixed and Western Mesophytic and Conifer-Northern Hardwood ecological community types comprise less than one percent of the area.

There are 279 acres of inventoried possible old growth in the Price Mountain roadless area. There are 86 acres in the Dry and Dry-Mesic Oak-Pine ecological community type (5

acres suitable), which represents 1.8 percent of the Forest's total for that type. There are 148 acres in the Dry Mesic Oak type (62 acres suitable) which represents 0.5 percent of the Forest's old growth for that type. There are 2 acres in the Mixed and Western Mesophytic type (2 acres suitable), which represents 0.05 percent of the Forest's total for that type. There are also 43 acres in the Xeric Pine and Pine-Oak type (0 acres suitable), which represents 4.8 percent of the Forest's total for that type.

The Price Mountain roadless area contains the sensitive Virginia white-haired leatherflower. No other known federally listed threatened, endangered, or sensitive species occur within the area.

Approximately 89 percent of this area is classified as having High Scenic Integrity.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area makes its preservation as potential wilderness practical. However, a seven acre private inholding does have the potential to impact wilderness attributes. This inholding is located in the upper reaches of Kelly Hollow at the end of FDR 5017. Directly north of Price Mountain roadless area is Patterson Mountain roadless area. Only FDR 184 separates the two areas. Directly southwest of Price Mountain roadless area is the Broad Run roadless area. Only VA 606 separates these two areas. Most of the boundary follows property boundary lines and human improvements such as roads. Surrounding lands are mostly private to the east of the area and Forest Service to the northwest and southwest. The private land near this area does have the potential to impact wilderness attributes but the steep ridges and side drains buffer the magnitude of potential impacts.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows human made features such as roads and property line boundaries. An offset from boundary roads such as VA 606 would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, road alignment, etc.). An offset of approximately 300 feet from the centerline of VA 606 would be recommended while an offset of 100 feet from the centerline of FDR 184 would be recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Hiking on the Price Mountain and Sulphur trails is an attraction to this area that offers good views of the surrounding countryside. Hunting is also very popular in the area.

#### WILDLIFE

The Price Mountain roadless area provides habitat for diverse wildlife species. The featured species for the area is approximately 70 percent deer, 27 percent turkey, and three percent gray squirrel. The gray squirrel area is adjacent to a gray squirrel featured area in the adjoining Patterson Mountain roadless area. No threatened, endangered, or sensitive wildlife species are known to occur within this roadless area.

#### WATER AVAILABILITY AND USE

Most of this roadless area drains into Craig Creek. The southern one-third of the area drains into Catawba Creek. There are no known water storage needs or any existing

PRICE MOUNTAIN

special use water permit authorizations.

Water quality should remain at its current level whether or not the area is designated wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 26 percent, or 2,393 acres, is classified as suitable for timber production. In the last 10 years, approximately 175 acres of timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 2,393 acres of suitable lands in this roadless area represent 0.8 percent of all lands suitable for timber production on the Jefferson National Forest. All minerals are owned by the U.S.A. There are no federal oil or gas leases within the area.

#### CULTURAL RESOURCES

As of March, 1998, 327 acres of this roadless area have been surveyed for cultural resources. There are five inventoried transient camps in the Price Mountain roadless area. The area exhibits a low potential for additional prehistoric and historic resources.

#### LAND USES

No special use permit authorizations have been issued for lands in this roadless area.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Fire suppression would be primarily by hand tools. Use of motorized and mechanized transport and equipment such as ATV's, bulldozers, and chainsaws would be allowed only upon specific approval by the appropriate line officer. Thus, wildfires would likely attain larger sizes than under current management. Wilderness designation may limit options for containing fires. Gypsy moth infestations are in the vicinity of this roadless area right now. Mortality can be severe (up to 25-30 percent) and oaks are the preferred hosts. Approximately 76 percent of the area is composed of the Dry Mesic Oak type and Dry/Dry Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other National Forest or private land.

Portions of this roadless area are occupied by near pure stands of table mountain pine and/or pitch pine forest types. These pine-dominated stands occur primarily on southeast to southwest facing ridges and slopes with dry, well-drained soils. Table mountain pine has serotinous cones that usually require significant heat in the tree canopy from fire to open the cones, thus allowing for seed dispersal and regeneration. Other oak dominated forest types that contain a component of these pine species also occupy a large portion of this roadless area. If this area was designated wilderness, the use of management ignited prescribed fire to manipulate these fire dependent ecosystems for restoration and maintenance would likely not be allowed. This will result in further declines in acreage and the open structure of these forest types along with the flora and fauna these ecosystems support.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

RACCOON BRANCH ROADLESS AREA ID NUMBER: 14404



## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 4,384 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 4,384 |

### LOCATION, VICINITY, AND ACCESS

The Raccoon Branch roadless area is located on the Jefferson National Forest, Mount Rogers National Recreation Area, Smyth County, Virginia. The area is bounded by a mixture of private and National Forest land to the north, VA 650 to the west and south, and VA 16 and Raccoon Branch Campground to the east. The area is found within a portion of U.S.G.S. Virginia Quadrangles Atkins and Troutdale. Major vehicular access is provided by VA 650 to the west and south, VA 16 to the east.

There is one improved road in the area. Forest Development Road (FDR) 49370, a gated road, enters the area from Raccoon Branch Campground and runs 1.51 miles to the southwest paralleling Raccoon Branch. This road is also coincident with the Virginia Highlands Horse Trail. Total improved road mileage is 1.51 miles.

There are no unimproved roads within the area.

Eight Forest Development Trails (FDT) access the area. Approximately 4.5 miles of the Appalachian National Scenic Trail (FDT 1) traverse the area in a north-south direction from Trimpi Shelter over High Point and down to Dickey Gap. Approximately 5.8 miles of the Virginia Highlands Horse Trail (FDT 337) traverse the area in an east-west direction from Raccoon Branch Campground over Bobby's Ridge and down to Comers Creek. The Virginia Highlands Horse Trail is a regionally significant trail that traverses over 80 miles of the NRA from Elk Garden, near Whitetop Mountain, to the New River Trail State Park. The section of the Virginia Highlands Horse Trail from Raccoon Branch Campground to the Appalachian National Scenic Trail crossing is open to horseback riders, hikers, and mountain bikers. The section of the Virginia Highlands Horse Trail from the Appalachian National Scenic Trail crossing to VA 650 is open to horseback riders and hikers. The Mullins Branch Trail (FDT 4513) is a foot only trail that enters the area from the north and climbs 2.5 miles up Dickey Ridge until intersecting with the Appalachian National Scenic Trail. The Dickey Knob Trail (FDT 346) is a foot and mountain bike trail that climbs 2.6 miles to the summit of Dickey Knob from Raccoon Branch Campground. The Raccoon Branch Trail (FDT 4610) is a foot and mountain bike trail that runs for 0.2 miles out of Raccoon Branch Campground before intersecting with the Dickey Knob Trail. The Hickory Ridge Trail (FDT 4516) is a mountain bike and foot trail that begins at VA 650 near Dickey Gap and climbs 0.6 miles to its intersection with the Virginia Highlands Horse Trail and Appalachian National Scenic Trail. Bobby's Trail (FDT 4514) is a foot only trail that connects the Virginia Highlands Horse Trail and Appalachian National Scenic Trail. The Raccoon Branch trail shelter is located along this 0.8 mile long trail. Lastly, the 1.6 mile Scott Branch Trail (FDT 4515) is a somewhat overgrown trail on the east side of the roadless area that receives light use. Total maintained trail mileage is 18.6 miles.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Southern Blue Ridge Mountains Subsection of the Blue Ridge Mountains Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by tectonic uplifted mountain ranges composed of igneous and metamorphic rock, forming many high gradient, deeply incised streams. The Raccoon Branch roadless area is heavily dissected with ridges. Dickey Ridge and Bobbys Ridge are long ridges running nearly the length of the roadless area. Two predominate peaks are found on Dickey Ridge; High Point and

RACCOON BRANCH

Dickey Knob. Numerous streams are found within the area. Raccoon Branch is the area's largest stream and it forms the drainage between Dickey Ridge and Bobbys Ridge. Other streams include Scott Branch, Shanty Branch, Muddy Branch, Mullins Branch, and Russell Hollow. In addition to these streams, Dickey Creek flows along the southeastern and eastern boundary, while Comers Creek flows along the southwestern and western boundary. All water in the roadless area flows into the South Fork of the Holston River approximately two miles to the north. Elevation ranges from approximately 2580 feet along VA 650 near the northwest corner to 4042 feet on the summit of High Point.

Vegetation is mainly broadleaf deciduous species with some yellow pine. Approximately 44 percent of the area has a site index of 70 or greater indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages, toeslopes, or along floodplains of small to medium sized streams. Here yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 56 percent of the area has a site index of 60 or lower, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and east midslope aspects with yellow pine occurring in the driest sites.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as horseback riding, mountain biking, hiking and hunting. Some fishing occurs along Comers and Dickey Creeks along the boundary of the roadless area. Both streams are stocked annually with trout. The section of the Appalachian National Scenic Trail passing through this area receives a moderate amount of use, particularly around the Raccoon Branch trail shelter. The Virginia Highlands Horse Trail also receives a moderate amount of use. The Dickey Knob Trail and Raccoon Branch Trail are popular hikes for campers staying at the Raccoon Branch Campground. The other trails in the area receive a low amount of use.

A portion of the 'Beast of the East', a 300 mile endurance race involving canoeing, hiking, and mountain biking, was run through a portion of the roadless area in June 1998 and again in May 1999. Mountain biking was featured through this area.

The Raccoon Branch Campground is located outside the eastern boundary of the area along VA 16. The campground has 20 sites, water, and restrooms with flush toilets. The campground is open year-round and receives moderate use.

Hurricane Campground is located outside the southwestern corner of the roadless area and has 29 sites, water, restrooms with flush toilets, and showers. The campground is open April through October and receives moderate to high use.

Approximately 29 percent, or 1275 acres, are classified as suitable for timber production within the area. Inventory data indicate 150 acres of privately owned, outstanding or reserved, mineral rights underlying Federal surface ownership.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 1.51 miles of improved road and 18.6 miles of maintained trail in the roadless area are visually evident and influences ecological processes, as a minimum, in the vicinity of the roads and trails. The Virginia Highlands Horse Trail often appears as a low standard road. The trail is maintained with a bulldozer and is often hardened with crushed stone applied by dump truck. Many old logging roads still exist; however, lack

of maintenance and use is allowing many of them to become overgrown and regain a more natural appearance.

Most of the area was cut over and frequently burned in the early 1900's. The predominant age range for timber in the area is 21-100 years, which represents 82 percent of the area. Six percent of the timber is in the 101 plus year old age class. The roadless area has 268 acres of possible inventoried old growth.

Featured species for the area is deer. The area contains 14 wildlife openings, totaling approximately 23 acres, which are regularly maintained by mowing.

The Raccoon Branch trail shelter, and associated privy, are maintained facilities located just off the Appalachian National Scenic Trail in the west central portion of the area. Maintenance of these facilities is expected to continue regardless of the future designation of the Raccoon Branch roadless area.

The area to the north of the roadless area is mostly private land with some National Forest land. The private lands are a mix of woodlands, pastures, farms, and residences with outbuildings. The old Slabtown mines are found on National Forest lands to the north of the area. The eastern, southern, and western boundaries adjoin large blocks of National Forest land. A large rock slide is within the roadless area near the eastern boundary. The 300-foot high slide area has stabilized and some small pines are growing where they have been able to grab hold. The bottom of this slide area was utilized as a borrow pit in the 1960's and 1970's, but is now inactive. Another borrow pit is located approximately 0.25 miles up FDR 49370 from Raccoon Branch Campground. This pit has a 10 foot high bank and has been inactive since the early 1980's. The Raccoon Branch Campground is just east of the roadless area.

#### KEY ATTRACTIONS

The area is very popular with horseback riders and hikers. The Hurricane and Raccoon Branch Campgrounds, adjacent to the roadless area, provide a starting point for many hikes into the area. The Virginia Highlands Horse Trail receives use from Fox Creek Horse Camp, a parking lot along VA 16, and parking along FDR 84 near Hurricane Campground. Mountain biking is a growing activity in this area, particularly on the Dickey Knob Trail and Virginia Highlands Horse Trail. Activities associated with hunting and fishing are also key attractions to this area. There are several locations along VA 650 where visitors park vehicles and set up camp.

Several unique plant, animal, and insect species occur within or adjacent to the roadless area. Populations of five-rowed peatmoss, fraser fir, and Appalachian fir club moss, all associated with spruce-fir forests, along with the yellow-bellied sapsucker, black sculpin, and Nelson's early black stonefly are present in the area. Five-rowed peatmoss is listed as very common and secure globally but occurs very rarely in Virginia. Fraser fir is listed as very rare globally, including Virginia. Appalachian fir club moss is listed as either very rare and local throughout its range or found locally in a restricted range globally and is very rare in Virginia. Yellow-bellied sapsucker is listed as very common and secure globally but extremely rare in Virginia. The black sculpin, or a variant of black sculpin, is listed as very rare globally and extremely rare in Virginia. Nelson's early black stonefly is found along the roadless area boundary and is listed as extremely rare both globally and in Virginia. There are no other known Federally threatened, endangered, or sensitive species in the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by

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outside forces. Much of the Raccoon Branch roadless area appears to be natural but there are signs of recent disturbance. The 1.51 miles of improved road and 18.6 miles of maintained trail are visually evident. If this roadless area becomes wilderness, the improved road would be in wilderness and removed from the Forest's transportation system. This improved road is also coincident with the Virginia Highlands Horse Trail and would remain on the Forest's trail system. The Virginia Highlands Horse Trail, through this area, is similar in appearance to a low standard road. Moderate to heavy use of this trail requires it to wide and, in some places, hardened with crushed stone. Maintenance is accomplished with a bulldozer. Some old access and logging roads and trails in this roadless area have become overgrown and impassable, causing minimal impact on the area's natural ecological processes.

There are 14 maintained wildlife openings totaling 23 acres within the area. Two inactive borrow pits are located near the eastern boundary of the area.

The foundation of an old firetower is still evident on the top of Dickey Knob. The Raccoon Branch trail shelter is located adjacent to Bobbys Trail, approximately 0.8 miles east of the Appalachian National Scenic Trail.

There are no acres in the 0-10 year old age class.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Raccoon Branch roadless area is 4384 acres in size and is located entirely on National Forest land. Elevations range from 2580 feet near the northwest corner along VA 650 to 4042 feet on the summit of High Point. A solitude core area of 2816 acres exists in the central portion of the area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The areas near VA 16 and VA 650 are classified as roaded natural. The ratio of core acres of solitude to the roadless area is approximately 64 percent. Visitor use to this area can be described as moderate from spring through fall. After hunting season, use is light until spring when Appalachian National Scenic Trail hikers and horseback riders return to the area. The visitor can expect to encounter other visitors along the Appalachian National Scenic Trial and Virginia Highlands Horse Trail. The further away one gets from improved roads and developed trails, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance away from roads and trails. However, some areas will be impacted by noises associated with traffic on improved roads around the periphery of the roadless area and activities occurring on adjoining private lands. These impacts are expected to be limited to the immediate vicinity of the roads and trails and adjoining private lands.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

This roadless area does present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as horseback riding, mountain biking, hiking, hunting, fishing, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Raccoon Branch roadless area is in the Southern Blue Ridge Subsection of the Blue Ridge Mountains ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 12,089 acres, on the Jefferson National Forest: Lewis

Fork, Little Wilson Creek, and Little Dry Run. Within the Southern Appalachians, 19 wildernesses and 62 roadless areas are classified within this subsection.

Geologic rock types of this area are dominated by quartzite, sandstone, and shale.

There are no designated Research Natural Areas or Experimental Forests within the roadless area.

Approximately 49 percent of the area is in the Dry Mesic Oak ecological community type. Another 26 percent is in the Mixed/Western mesophytic type, 21 percent is in the Dry/Dry-Mesic Oak-Pine type, and 3 percent is in the Xeric Pine/Pine Oak type.

There are 268 acres of possible inventoried old growth in the area. All 268 acres are represented in the Dry Mesic Oak ecological community type and are classified unsuitable. These 212 acres represent less than one percent of the Forest's total old growth in this type.

Four locally rare species, five-rowed peatmoss, Fraser fir, Appalachian fir club moss, yellow-bellied sapsucker, and two sensitive species, black sculpin, and Nelson's early black stonefly, are documented from this area.

Approximately 61 percent of the area is classified as having high existing scenic integrity.

The Raccoon Branch roadless area is separated from the Seng Mountain Roadless Area, to the west, by VA 650. The nearest existing wilderness is Lewis Fork, approximately four air miles to the southwest.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area makes its preservation as potential wilderness practical. Most of the boundary follows property boundary lines and roads. However, there are four areas where the boundary follows no discernible feature. Surrounding lands are mostly Forest Service, except for private land to the north. Although adjoining private lands contrast with the area, the effects are generally limited to the periphery along the boundary of the roadless area. Except for areas along the periphery, the high peaks and deep valleys protect this roadless area from the sights and sounds of civilization. Most of the 5.8 miles of the Virginia Highlands Horse Trail receives moderate use and is maintained with bulldozers. This trail would be difficult to return to a natural condition. There are 150 acres of privately owned mineral rights within the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows features such as roads and property line boundaries. There are four areas, however, where the boundary follows no discernible feature. In the northwest corner there is approximately 4000 feet of boundary that follows an interior property line. Purchase of the Barton Tract in 1994 made this an interior line. It is recommended that this boundary stays in its present location and utilizes the interior line. Just south of Trimpi trail shelter, and the old Slabtown mines, the roadless area boundary appears to follow the 3,000- foot contour line for approximately 2500 feet. The boundary was drawn in this location to exclude the Trimpi trail shelter and the old Slabtown mines. This section of boundary would be difficult to establish on the ground. A straight line bearing is recommended to establish this boundary. In the center of the northern boundary of the roadless area the boundary dips south and creates an indention into the area. This boundary is following an old interior National Forest property line. This property, excluded from the roadless area, was acquired by the Forest Service in 1993. Changing the boundary to follow the southernmost fenceline of the Mullins Branch grazing pasture is recommended. This would add approximately 65 acres to the area and consolidate the

RACCOON BRANCH

shape of the roadless area. On the eastern edge of the area the Raccoon Branch Campground and a one-acre private land inholding, with cabin, are excluded. The existing boundary does not appear to follow any feature. A recommendation is to have the roadless area boundary leave VA 16 where Hutton Branch flows into Dickey Creek and then follow Dickey Creek around the campground. Below the campground, the boundary would leave Dickey Creek at the private cabin and then follow the old road that accesses the private cabin until it connects back with VA 16. This old road is not on the Forest Service transportation system. The owners of the cabin have a prescriptive right to use the road for access purposes.

An offset from improved roads bounding the area would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, road alignment, etc.). An offset of 300 feet from the centerline of VA 16 and VA 650 is recommended. An offset of 100 feet around the old road to the private cabin is recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There is one developed recreation facility within this roadless area; the Raccoon Branch trail shelter, which is associated with the Appalachian National Scenic Trail. Dispersed recreation activities such as horseback riding, mountain biking, hiking, hunting, fishing, and dispersed camping are the largest recreation attractions to the area. The Appalachian National Scenic Trail and Virginia Highlands Horse Trail attract a great deal of visitor use. A trailhead parking lot is located on the east side of VA 16 across from Raccoon Branch Campground. Minimal parking is available at Dickey Gap at the VA 16/VA 650 intersection. Visitors park here to access the Appalachian National Scenic Trail and Hickory Ridge Trail. Established uses that would be discontinued should this area be designated a wilderness include: (1) mountain biking, and (2) heavy equipment maintenance of the Virginia Highlands Horse Trail where this trail passes through the roadless area.

#### WILDLIFE

This roadless area provides habitat for a diversity of wildlife species. Featured species of the area is deer. Fourteen wildlife clearings totaling 23 acres are in the roadless area. If this area is designated as a wilderness, maintenance of the wildlife clearings would be discontinued. The yellow-bellied sapsucker is known to occur within this area.

#### WATER AVAILABILITY AND USE

Comers Creek flows along the western and southwestern boundary. Dickey Creek flows along the eastern and southeastern boundary. Both streams are annually stocked with trout. Shanty Branch, Raccoon Branch, and Dickey Creek support populations of wild trout. All three streams have good water chemistry. All water from the roadless area ultimately drains into the South Fork of the Holston River. There are no existing special use water permit authorizations or known water storage needs. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Two pastures within the Sugar Grove Grazing Allotment are located just outside the roadless area boundary. The Mullins Branch pasture is just north of the area. The southern fenceline of this pasture is the roadless area boundary. The Barton Tract East pasture is located just outside the

northwest boundary. There is a thin strip of woods between this grazing pasture and the roadless area boundary. Approximately 23 percent, or 103 acres, of the area is classified as suitable for timber production. In the last 10 years no timber has been harvested. In the last 20 years, approximately 38 acres of timber has been harvested. Timber harvest and the associated production of wood products from this area would be precluded by wilderness designation. The 1023 acres of suitable lands in this roadless area represent less than one percent of all lands suitable for timber production on the Jefferson National Forest. Private subsurface minerals ownership is held on 150 acres within this area. No Federal oil and gas leases or other Federal leases are in effect in this area as of December 1999. The potential for energy minerals, primarily natural gas, is estimated to be low. This area is located south of the Glade Mountain District (1944, Miller, R.L.). manganese was prospected and mined in this district. This roadless area does not have a history of extensive mining. The potential for commercial deposits of Federal leasable minerals, including metallic minerals, is estimated to be low. The 65 acres of land recommended to be included in the roadless area (see 2.f.) in the northern portion of the area contain no outstanding mineral rights.

#### CULTURAL RESOURCES

As of March 1998, approximately 540 acres of this roadless area has been surveyed for cultural resources. Three prehistoric transient camps have been documented. In addition, an additional prehistoric site has been located but further work is needed to classify the site type. The area exhibits a moderate to high potential for additional prehistoric and historic resources.

#### LAND USES

One special use authorization has been issued within this roadless area. A segment of the 300 mile endurance race, the 'Beast of the East', occurred in June 1998 and May 1999. No other special land use authorizations have been issued within the area. Two inactive borrow pits are in the area: near Raccoon Branch Campground along FDR 49370 and along the prescriptive right-of-way road that accesses private property along the eastern boundary.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands on the northern perimeter. Wilderness designation may limit options for containing fires on private and/or federal lands. Raccoon Branch roadless area is expected to be in the generally infested area for gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina. Mortality in already stressed timber stands can be severe (up to 25-30%) following a first defoliation and oaks are the preferred hosts. Approximately 71 percent of the area is composed of the Dry Mesic Oak type or Dry/Dry Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other national forest or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**ROGERS RIDGE** ROGERS RIDGE ID NUMBER: 04010

## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service* | 4,914 |
| Private | 19 |
| Park Service | 0 |
| TOTAL | 4,933 |

* Cherokee National Forest - 4,734 acres, Jefferson National Forest - 180 acres

### LOCATION AND VICINITY

Rogers Ridge roadless area is located on the Cherokee National Forest, Watauga Ranger District, Johnson County, Tennessee and the Jefferson National Forest, Mount Rogers National Recreation Area, Washington County, Virginia. The area is generally bounded by private land and 2.1 miles of non-system road on Piney Knob Ridge (access to private land) to the west, north, and east and FDR 123 to the south. The area is found within U.S.G.S. Tennessee-North Carolina-Virginia Quadrangle Grayson. Major vehicle access is provided by county roads and FDR 123 to the south and Virginia State Highway 726 to the north. There is one improved road within the roadless area (FDR 124 - 2.4 miles). There are two trails in the area, FDT 192 - Rogers Ridge Horse Trail (5.77 miles) and FDT 51 - Gentry Creek Falls Trail (2.29 miles).

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

This area lies in the Central Appalachian Forest-Meadow province of the Southern Appalachian Mountains. Landform consists of mountain peaks and ranges separated by intermountain basins. Rogers Ridge is a mountain ridge divided by a series of small, steep sideslope drains. Elevation ranges approximately from 2600' at the drains to 4880' on the ridgetop near Mt. Rogers 5. Soils are Dystrochrepts, Kanhapludults, and Hapluduts with mixed kaolinitic and micaceous mineralogy with mesic temperature and udic moisture regimes. Vegetation is composed of mainly broadleaf deciduous species (white and scarlet oaks) with mixed mesophytic species and yellow poplar at low elevations, with pitch pine on drier and disturbed sites, and chestnut oak and northern red oak at moderate elevations. This area has been further classified as being in the Southern Blue Ridge Mountains subsection of the Blue Ridge Mountains section ecological unit classification.

### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting, hiking, and horseback riding. There are two private inholdings within the area (the upper tract is approximately 13 acres in size and the lower tract about 6 acres). A concrete shed is located on the upper tract and two access ways (.2 mile) provide for ingress and egress.

### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 2.40 miles of improved system road located in the roadless area as well as the concrete shed on the private inholding contrast with their immediate surrounding characteristics, although the majority of the area has a natural appearance. Although most of the area was timbered in the past, few obvious signs remain and those are disappearing into forest growth. The private land along the boundary contrast with the roadless area in sections from the development of houses, roads, tree nurseries, and other improvements.

#### KEY ATTRACTIONS

Those acres identified on the Jefferson National Forest are part of the Mount Rogers National Recreation Area. Approximately 3,000 acres of the roadless area are within the Rogers Ridge Scenic Area (3,865 acres). There are also several mountain balds within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Rogers Ridge roadless area appears to be natural but there are signs of recent disturbance. There are no acres of 0-10 age classes or any maintained wildlife openings within this roadless area. There are 2.4 miles of maintained improved road within the area and 8.06 miles of maintained trail.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

Rogers Ridge Roadless area is 4,934 acres in size and is located entirely on National Forest land. Rogers Ridge is a mountain ridge divided by series of steep sideslope drains. Elevation ranges from 2600' at the drains to 4800' along the ridge crest. A solitude core area of 2,000 acres exists in a elongated dog bone shape pattern. The relationship of core acres of solitude to the roadless area is approximately 40 percent. There is one improved road (2.4 total miles) located within the roadless area. There are two trails within the roadless area (8.06 miles), one of which is a horse trail. Visitor use for the most part is light with small group sizes. The designated horse trail does tend to have larger group sizes than the hiking trail. Visitors feel like that they are in a unconfined, natural area. Noise from the surrounding lands can be heard along the periphery of the roadless area. Noise impacts and the reduced feeling of solitude and isolation are also felt when the improved road within the area is being used for Forest Service activities. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from the improved road and trails. Within the area there are some vestiges of isolated, scattered pockets of forest primeval but there is a degree of evidence of human impact. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

Rogers Ridge roadless area does present a range of dispersed recreational activities of which are typically found on the Cherokee National Forest as a whole. Activities such as hiking, hunting, fishing, and primitive camping, are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Rogers Ridge is in the Southern Blue Ridge Mountain subsection of the Blue Ridge Mountain ecosystem section (4,934 acres). This ecosystem subsection and section is represented by the following wildernesses on the Cherokee National Forest: Big Laurel Branch, Pond Mountain, and Unaka Mountain (17,757 acres).

Rogers Ridge roadless area contains a diversity of geologic features (mountain balds, waterfalls, creeks, etc.) that are typical of the Southern Appalachian Mountains that draw people to the area to experience the scenic views.

Geologic rock types of this area consist of the Erwin Formation (White, vitreous quartzite, massive, with interbeds of dark-green silty and sandy shale, minor siltstones and very fine sandstone); Hampton Formation (Dark greenish-gray, silty and sandy shale, micaceous shale; numerous layers of medium-grained, feldspathic, thinly bedded sandstone); Unicoi

ROGERS RIDGE

Formation (Sequence of gray feldspathic sandstone, arkose, conglomerate, graywacke, siltstone and shale; greenish amygdaloidal basalt flows) and the Mount Rogers Group (Metavolcanics, typically purplish and reddish; massive lavas and tuffs; altered rhyolites and quartz latites; strongly foliated; interbedded arkose, shale and conglomerate).

There are no designated Research Natural Areas or Experimental Forests with the roadless area. High elevation grassy balds, a unique vegetation community that may have the potential to significantly contribute to scientific or educational values are located within this roadless area as well as Gentry Creek waterfall.

Mountain Bittercress (*Cardmine clematits*), Blue Ridge St. John's-Wort (*Hypericum Mitchellianum*) and Mountain Rattlesnake-Root (*Prenanthes roanensis*), all sensitive plant species have been identified as occurring in this roadless area.

Approximately 35% of the area is in the Northern Hardwood ecological community type. Another 21% is in the Mixed Mesophytic type, 19% in the Dry and Dry-Mesic Oak-pine type, 18% in the Dry-Mesic Oak type, and the remaining in miscellaneous types.

Possible old growth is present on approximately 309 acres of Northern Hardwood forest which represents 27% of this forest community type on the national forest. These acres are within the unsuitable land base. Possible old growth makes up approximately six percent of the roadless area. Approximately 3,244 acres (68%) is in the late forest successional type. Another 1,347 acres are in the mid-successional forest type class.

Rogers Ridge roadless area has approximately 282 acres classified as Scenic Attractiveness Class A - Distinctive. These acres were identified as foreground along major streams in the area.

The following streams contain trout populations in this roadless area (all trout species are considered significant on the Cherokee National Forest with brook trout considered a native species): Gentry Creek (rainbow trout, brook trout), Grindstone Branch (rainbow trout, brook trout), Cut Laurel Branch (rainbow trout, brook trout), Kate Branch (rainbow trout, brook trout), Richardson Branch (brook trout), and Whetstone Branch (brook trout).

#### SIZE, SHAPE, AND MANAGEABILITY

As described previously, the size and shape of Rogers Ridge roadless area makes its preservation as potential wilderness practical. The boundary follows topographic features, property boundary lines, and human improvements such as roads. Although surrounding lands contrast dramatically with the area, the effects are limited to the periphery along the boundary of the roadless area and as such, any activity that does occur would not dominate the user's wilderness experience. High ridges and distance are more likely to limit the sights and sounds of civilization than the actual boundaries. The private inholdings near the western and southern boundary do have the potential to impact wilderness attributes but the surrounding steep ridges and side drains will buffer the magnitude of the potential impacts.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

The boundary follows obvious human made features such as roads and property line boundaries as well as natural features such ridges. A offset from the boundary roads such as FDR 123 would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, road alignment, etc.). A offset of approximately 300 feet from the centerline of existing roads is recommended. The trailhead parking lots (FDT 192 and FDT 51) need to be excluded from the roadless area.

## Wilderness Availability.



### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. There is a potential National Recreation Survey Site (NFRS site 54.0 - 24 acres) within the roadless area. There are no immediate plans to develop this site. Designation as wilderness would prevent this site from being developed. There are two trails in the roadless area (see Overview). Those acres identified on the Jefferson National Forest are part of the Mount Rogers National Recreation Area.

### WILDLIFE

Fishery management activities are related to monitoring the known trout populations (identified in Section 2d), surveying additional streams (Gilbert Branch) for trout populations, and the periodic removal of competing trout and other fish from brook trout streams.

### WATER AVAILABILITY AND USE

This roadless area contains the headwaters of Gentry Creek, which is a tributary stream of Laurel Creek, which drains into the South Fork Holston River. It also contains the headwaters of McQueen Branch, which is a headwater stream of the South Fork Holston River. There are no known water storage needs or any existing special use water permits. Water quality should remain at its current level whether or not the area is designated wilderness. Mitigation measures for ground-disturbing activities in non-wilderness areas should minimize adverse impacts on water quality. Ground disturbing activities in wilderness are held to a minimum.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations.

Approximately 4 percent or 180 acres of the Rogers Ridge roadless area is classified as suitable for timber production. In the last 10 years, no acres of timber have been harvested. Timber harvest and the associated production of wood products from this area would be precluded by wilderness designation. This amounts to less than 1 percent of the lands suitable for timber production on the Cherokee National Forest.

Hard rock mineral production potential is low and unlikely at this time. All mineral rights are in federal ownership. No gas and oil leases have been issued in the roadless area as the potential for discovery of these natural resources is low and unlikely.

### CULTURAL RESOURCES

The Rogers Ridge roadless area has been partially surveyed and contains six identified cultural resource sites. These have been classified as Class II sites, which require additional evaluation to determine if they are eligible for listing in the National Register of Historic Places (pursuant to 36 CFR 60).

### LAND USES

No special use permits have been issued for lands in the area.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Two private inholdings would be affected if the area was designated as wilderness (13 and 6 acres). Traditional access would be allowed but improvements to the private lands may be

ROGERS RIDGE

impacted by wilderness designation.

Present fire control techniques are not expected to be impacted substantially if the area became designated wilderness. Since 1985, no recorded wildfires have occurred within the area.

There are a total of 24 acres of southern yellow pine types greater than 70 years of age at a moderate to high risk of southern pine beetle attack. No additional acres will be at a moderate to high risk within the next ten years. However, these acres are not within the suitable land base.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

SENG MOUNTAIN ROADLESS AREA ID NUMBER: 14405 SENG MOUNTAIN

## Overview

| Surface Ownership | Acres |
|---|---|
| Forest Service | 6,455 |
| Private | 0 |
| Park Service | 0 |
| TOTAL | 6,455 |

### LOCATION, VICINITY, AND ACCESS

The Seng Mountain roadless area is located on the Jefferson National Forest, Mount Rogers National Recreation Area, Smyth County, Virginia. The area is bounded by Forest Development Roads (FDR) 643 and 845 to the north, private land and VA 600 to the west, FDR 84 to the south, and Hurricane Campground and Comers Creek Trail to the east. The area is found within portions of U.S. G.S. Virginia Quadrangles Whitetop, Troutdale, and Konnarock. Major vehicular access is provided by VA 600 from the west, FDR 84 from the south, and FDR 643 from the northeast.

There is one improved road in the area. FDR 49410, a gated road, enters the area from FDR 643 along the northern boundary and runs 0.84 miles to the south. Total improved road mileage is 0.84 miles.

There are two unimproved roads in the area. FDR 4028, a gated road, enters the area from FDR 84 along the southern boundary and runs 1.34 miles to the north. FDR 84B, a gated road, enters the area from FDR 84 along the southwestern boundary and runs 2.9 miles to the east. Total unimproved road mileage is 4.24 miles.

Four Forest Development Trails (FDT) are within the area. Three trails form the 12.8 mile Rowland Creek Falls Circuit. Rowland Creek Trail (FDT 164), Jerrys Creek Trail (FDT 165), and Old 84 Trail (FDT 4630) form this loop and are open to hikers, mountain bikers, and horseback riders. The 4.2 mile Old 84 Trail traverses the area in an east-west direction from FDR 84 at Hurricane Gap to FDR 84 near Skulls Gap. The last 2.9 miles of this trail is coincident with FDR 84B. The Rowland Creek Trail climbs 3.1 miles from FDR 643 near the northern boundary until it intersects FDT 4630 and FDR 84 near Hurricane Gap. Approximately 2.4 miles of the Jerrys Creek Trail are within the roadless area. The portion within the roadless area starts at the end of FDR 845 and climbs up to an intersection with FDT 4630 and FDR 84. There are 3.1 miles of this trail that form the northern boundary of the roadless area. These 3.1 miles are also coincident with FDR 845, a gated road. The Barton Gap Trail (FDT 4624) is located in the eastern portion of the roadless area. This 1.6 mile trail is open to hikers, mountain bikers, horseback riders, and motorcycles and connects FDR 84 to FDR 643. Total maintained trail mileage is 11.3 miles.

Old access and logging roads are scattered throughout the area. Some are kept open by illegal ATV traffic, primarily in the northcentral portion of the roadless area.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Southern Blue Ridge Mountains Subsection of the Blue Ridge Mountains Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by tectonic uplifted mountain ranges composed of igneous and metamorphic rock, forming many high gradient, deeply incised streams. The Seng Mountain roadless area is heavily dissected with ridges. Dominate ridges in the area include Bear Ridge, Seng Mountain, Chestnut Ridge, Pine Spur, Round Top and Double Top. Streams abound in the roadless area. Rowland Creek and Jerrys Creek are two of the larger streams. Other streams include St.

SENG MOUNTAIN

Clairs Creek, Dry Fork, Cold Branch, Long Branch, Incline Hollow, and Bark Camp Branch. In addition, Hurricane Creek flows along the southeastern boundary of the roadless area while Comers Creek flows along the eastern boundary. All water in the roadless area flows into the South Fork of the Holston River, located approximately three air miles to the north. Elevation ranges from approximately 2480 feet along Dry Fork near the northwest corner to 4626 feet on the summit of Round Top.

Vegetation is mainly broadleaf deciduous species with some yellow pine. Approximately 61 percent of the area has a site index of 70 or greater indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages, toeslopes, or along floodplains of small to medium sized streams. Here yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 39 percent of the areas has a site index of 60 or lower, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and east midslope aspects with yellow pine occurring in the driest sites. The area also contains several of Virginia's few remaining pure stands of table mountain pine. This species requires fire to reproduce and is becoming increasingly uncommon within its natural range due to fire exclusion.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as horseback riding, mountain biking, hiking, trail motorcycling, fishing, and hunting. Some fishing occurs along Hurricane and Comers Creeks along the boundary of the roadless area. Both streams are stocked with trout. Trails in the area have historically received a low amount of use, but use has been increasing in recent years, particularly with mountain bikers. A brochure has been developed for the Rowland Creek Falls Circuit.

The Hurricane Campground is located outside the southeastern corner of the roadless area. The campground has 29 sites, water, restrooms with flush toilets, and showers. The campground is open April through October and receives a moderate to high level of use.

The Skulls Gap picnic area, located just outside the southwestern corner of the roadless area, has seven sites, a vault toilet, and running water. Approximately 70 percent, or 4473 acres, of the area are classified as suitable for timber production. Inventory data indicate 461 acres of privately owned, outstanding or reserved, mineral rights underlying Federal surface ownership.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 0.84 miles of improved road, 4.24 miles of unimproved road, and 11.3 miles of maintained trail in the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads and trails. Many old access and logging roads still exist; however, lack of maintenance and use is allowing some of them to become overgrown and regain a more natural appearance while others are kept open by illegal ATV traffic.

Most of the area was cut over and frequently burned in the early 1900's. Approximately 87 percent of the timber is in the 21-100 year old age class, 10 percent is in the 100+ years class, and two percent is in the 0-10 year class. The area contains 33 acres of possible inventoried old growth.

Featured species for the area is primarily deer. A 50 acre special area for gray squirrel is located along FDR 84 near Hurricane Gap. The area contains 17 maintained wildlife openings totaling approximately 30 acres. FDR 84B provides access for tractors to maintain

several of the openings and is mowed and kept open by the Virginia Department of Game and Inland Fisheries. Although not indicated as a wildlife clearing, this mowed road represents seven acres of maintained clearing.

The area is nearly surrounded by National Forest except for the western boundary, which adjoins private land. The private lands are a mix of woodlands, pastures, farms, and residences with outbuildings. Two inactive borrow pits are within the area. One pit is located approximately 0.25 mile south of FDR 643 near the northern boundary of the area. This pit has 15 foot high walls that have stabilized and was last used in the 1970's. Another pit is located approximately 0.25 mile north of FDR 84 near Hurricane Gap, which was last used, in the early 1980's. This pit has 10 foot high walls and has stabilized. The Hurricane Campground is just southeast of the roadless area.

#### KEY ATTRACTIONS

A big attraction to the area is the Rowland Creek Falls, a 45 foot cascading waterfall, located along the Rowland Creek Trail in the central portion of the area. The Hurricane Campground and Skulls Gap Picnic Area, adjacent to the roadless area, provide a starting point for access into the area. Mountain biking is a growing activity over the area's roads and trails. Activities associated with hunting are also a key attraction to this area. There are several locations along FDR 84, FDR 643, and VA 650 where visitors park vehicles and set up camp. The tower-mustard plant has been found in this roadless area. There are no Federally threatened, endangered, or sensitive species known to occur within the area.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area and the area is minimally affected by outside forces. Much of the Seng Mountain roadless area appears to be natural but there are signs of recent disturbance. The improved and unimproved roads and maintained trails within the roadless area are visually evident. If this roadless area is designated wilderness, the improved and unimproved roads would be in wilderness and removed from the Forest's transportation system. Some old access and logging roads and trails in this roadless area have become overgrown and impassable, causing minimal impact on the area's natural ecological processes, while others are kept open by illegal ATV traffic.

The wildlife openings are regularly maintained through regular mowing. Additionally, FDR 84B is mowed and kept open to facilitate maintenance of several of the openings. Two inactive borrow pits are located within the area. Both pits are relatively small with cut banks of less than 15 feet. The pits have been inactive for over 15 years and have stabilized.

There are 158 acres in the 0-10 year old age class and no acres in the 11-20 year old age class.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Seng Mountain roadless area is 6423 acres in size and is located entirely on National Forest land. Elevations range from 2480 feet on Dry Fork near the northwest corner to 4626 feet on the summit of Round Top. A solitude core area of 2745 acres exists in the central portion of the area. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. Within the Seng Mountain roadless area, this ROS classification is semi-primitive motorized. The ratio of core acres of solitude to the roadless area is approximately 43 percent. Visitor use to this area can be described as light to moderate from spring through fall. Most use occurs on the periphery of the area except for the trails near Rowland Creek and Jerrys Creek. After

SENG MOUNTAIN

hunting season, use is light until spring when visitors return to the area. The further away one gets from improved roads and developed trails, the greater the feeling of being in an unconfined, natural area since the area appears to be relatively free from disturbance away from roads and trails. However, some areas will be impacted by noises associated with traffic on improved roads around the periphery of the roadless area and activities occurring on adjoining private lands. The Barton Gap Trail receives some motorcycle use. These impacts are expected to be limited to the immediate vicinity of the roads and trails and adjoining private lands.

Much of the terrain in this roadless area is steep and rugged, offering the visitor good opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

This roadless area does present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as horseback riding, mountain biking, hiking, off trail motorcycling, hunting, fishing, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Seng Mountain roadless area is in the Southern Blue Ridge Subsection of the Blue Ridge Mountains ecosystem Section (6,423 acres). This ecosystem subsection and section is represented by the following wildernesses, totaling 12,089 acres, on the Jefferson National Forest: Lewis Fork, Little Wilson Creek, and Little Dry Run. Within the Southern Appalachians, 19 wildernesses and 62 roadless areas are classified within this subsection.

Geologic rock types within this area are dominated by quartzite, sandstone, and shale. Soils at the higher elevations, generally 4,000 feet and greater, are considered to have a frigid temperature regime. This means soil temperatures are cooler and growing seasons shorter for these high elevation soils. Because of these cooler temperatures, the soils typically have thicker organic surface layers than soils at the lower elevations.

There are no designated Research Natural Areas or Experimental Forests within the roadless area.

Approximately 60 percent of the area is in the Dry Mesic Oak ecological community type. Another 18 percent is in the Mixed/Western mesophytic type, 13 percent is in the Dry/Dry-Mesic Oak-Pine type, 6 percent is in the Northern Hardwood type, and 3 percent is in the Xeric Pine/Pine Oak type.

There are 33 acres of possible inventoried old growth in the area. The ecological community types represented are: 32 acres Dry and Dry-Mesic Oak-Pine (26 acres suitable) which represents 0.6 percent of the Forest's total; and one acre Mixed and Western Mesophytic (suitable) which represents less than 0.1 percent of the Forest's total.

There are several stands of table mountain pine within the area, which offer opportunities for scientific and educational purposes.

The cascading Rowland Creek Falls is a scenic attraction to the area.

Approximately 62 percent of the area is classified as having high existing scenic integrity.

The Seng Mountain roadless area is separated from the Raccoon Branch roadless area, to the east, by VA 650. The nearest existing wilderness is Lewis Fork, approximately three air

miles to the south. SENG MOUNTAIN

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area makes its preservation as potential wilderness practical. Most of the boundary follows property boundary lines and roads. However, there are two areas where the boundary follows no discernible feature. Surrounding lands are primarily Forest Service ownership, except for private land to the west. Although adjoining private lands contrast somewhat with the area, the effects are generally limited to the periphery along the boundary of the roadless area. Except for areas along the periphery, the high peaks and deep valleys protect this roadless area from the sights and sounds of civilization. The 5.08 miles of improved and unimproved roads are closed to general public vehicle use and could be allowed to return to a natural condition. However, FDR 84B is mowed and kept open in order to access wildlife clearings. There are 461 acres of privately owned mineral rights underlying Federal surface ownership.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows features such as roads and property line boundaries. There are two areas; however, where the boundary follows no discernible feature. In the northwest corner, between Pine Spur and Jerrys Creek, there is approximately 2500 feet of boundary that follows no feature. A recommendation is made to follow a small drainage approximately 500 feet north of the existing boundary in order to simplify marking on the ground. This drainage flows into Jerrys Creek near FDR 845 at which point the roadless area boundary would follow FDR 845. This would add approximately 20 acres to the area. Near Hurricane Campground, the roadless area boundary follows a drainage between Comers Creek Trail and FDR 84. The drainage does not quite intersect FDR 84. There is approximately 200 feet between the drainage and FDR 84. A recommendation is to follow the drainage to its headwaters and then a direct bearing south to FDR 84.

An offset from improved roads bounding the area would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, gravel placement, road alignment, etc.). An offset of 300 feet from the centerline of VA 600, FDR 84, and FDR 643 and an offset of 100 feet from the centerline of FDR 845 is recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation sites within this roadless area. Dispersed recreation activities such as horseback riding, mountain biking, hiking, trail motorcycling, hunting, fishing, and dispersed camping are the principal recreation attractions to the area. A parking lot is located just outside the western boundary of the area at Horseshoe Bend on VA 600. Parking is also available at Skulls Gap Picnic Area outside the southwest boundary of the area. Minimal trailhead parking is available at the upper end of Rowland Creek Trail on FDR 84 and the lower end of Jerrys Creek Trail on FDR 643. Established recreation uses that would be discontinued should this area be designated a wilderness are: (1) mountain biking, and (2) trail motorcycling.

#### WILDLIFE

This roadless area provides habitat for a diversity of wildlife species. Featured species of the area is deer with a 50 acre area along FDR 84 near Hurricane Gap that features gray squirrel. The 17 wildlife clearings totaling 30 acres would no longer be maintained if this area becomes a designated wilderness.

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### WATER AVAILABILITY AND USE

The main drainages in this area are Comers Creek and Hurricane Creek. Both streams are stocked trout fisheries that support wild rainbow, brown, and brook trout. The lower reaches of Comers Creek, within the roadless area, and Hurricane Creek have good water chemistry and very good macroinvertebrate monitoring scores. Rowland Creek has a population of wild rainbow trout while Jerrys Creek and Incline Hollow have populations of wild brook trout. All water from this roadless area ultimately drains into the South Fork of the Holston River. There are no known water storage needs or any existing special use water permit authorizations within the area. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 70 percent, or 4473 acres, of the area is classified as suitable for timber production. In the last 20 years, approximately 158 acres of timber has been harvested. Timber harvest and the associated production of wood products from this area would be precluded by wilderness designation. The 4473 acres of suitable lands in this roadless area represent approximately 1.4 percent of all lands suitable for timber production on the Jefferson National Forest. Private subsurface minerals ownership is held on 479 acres within this area. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of October 1999. Federal oil and gas leasing occurred in this area in the 1980's. No oil or gas wells were drilled and the Federal leases expired. The potential for energy minerals, primarily natural gas, is estimated to be low. This area is located south of the Glade Mountain District (1944, Miller, R.L.) where manganese was prospected and mined. This roadless area does not have a history of extensive mining. The potential for commercial deposits of Federal leasable minerals, including metallic minerals, is estimated to be low.

### CULTURAL RESOURCES

As of March 1998, approximately 469 acres of this roadless area has been surveyed for cultural resources. Four prehistoric transient camps have been documented. Four additional prehistoric sites have been located but further work is needed to classify the site types. The area exhibits a moderate to high potential for additional prehistoric and historic resources.

### LAND USES

No special use permit authorizations have been issued in this roadless area. Two abandoned borrow pits are located within the bounds of the roadless area. One is located 0.25 miles south of FDR 643 near the northern boundary and the other is 0.25 miles north of FDR 84 near Hurricane Gap.

### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. The roadless area is bounded by private lands on the northern perimeter. Wilderness designation may limit options for containing fires on private and/or federal lands. Seng Mountain roadless area is expected to be in the generally infested area for gypsy moth in the next ten to twenty years, dependent upon the success of gypsy moth Slow-the-Spread efforts to the north in Virginia and West Virginia, and to the south in North Carolina.

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Mortality in already stressed timber stands can be severe (up to 25-30%) following a first defoliation and oaks are the preferred hosts. Approximately 73 percent of the area is composed of the Dry Mesic Oak type or Dry/Dry Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other national forest or private land.

### Need

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

**SHAWVERS RUN WILDERNESS ADDITION**

SHAWVERS RUN WILDERNESS ADDITION ID NUMBER: 14502

## Overview

*Although not included in this evaluation, there is a 30 acre tract of private land located between this roadless area and the Shawvers Run Wilderness. The only motorized access to this private inholding is a road leading off from Forest Development Road (FDR) 5008.

| Surface Ownership | Acres |
|---|---|
| Forest Service | 1,926 |
| Private* | 0 |
| Park Service | 0 |
| TOTAL | 1,926 |

### LOCATION, VICINITY, AND ACCESS

Shawvers Run Wilderness Addition roadless area is located on the Jefferson National Forest, New Castle Ranger District, Craig County, Virginia. The area is bounded by VA 18 and private land to the north, FDR 5008 to the west, private land to the south, and Shawvers Run Wilderness to the east. The area is found within a portion of the U.S.G.S. Virginia Quadrangle Potts Creek. Major vehicular access is provided by VA 311 in the southwestern area and FDR 5008 along the western end.

FDR P2, an access road with a prescriptive right-of-way, enters the roadless area off of FDR 5008. The road is approximately 0.47 miles in length and accesses a private inholding. Total improved road mileage is 0.47 miles.

Approximately 0.66 miles of a closed, unmaintained segment of FDR 5008 fall within the roadless area. This unimproved road segment is used, administratively, to access existing wildlife clearings for maintenance purposes. The Craig-Botetourt Electric Co-op also uses this segment to access a utility pole line in the southwestern end of the area. Total unimproved road mileage is 0.66 miles.

There are several abandoned access roads throughout the area. Some have become overgrown and impassable to anything but foot traffic, while others remain fairly well defined.

There are no maintained trails within the area.

### GEOGRAPHY, TOPOGRAPHY, AND VEGETATION (INCLUDING ECOSYSTEM TYPE)

According to ecological mapping, this area lies in the Ridge and Valley Subsection of the Northern Ridge and Valley Section within the Central Appalachian Broadleaf-Coniferous Forest-Meadow Province. This Section is characterized by northeast/southwest trending ridges of sandstone or shale with parallel drainages and broad limestone valleys. Included in this area is Middle Mountain and a series of small, steep sideslope drainages. Elevation ranges from approximately 1720 feet near Steel Bridge Campground, at the beginning of FDR 5008, to 3148 feet at a point along the crest of Middle Mountain.

Vegetation is primarily broadleaf deciduous species. Approximately 43 percent of the area has a site index of 70 or greater indicating moderate to high productivity for tree growth. These areas occur in colluvial drainages, toeslopes, or along alluvial flood plains of small to medium sized streams. Here, yellow poplar, northern red oak, white oak, basswood, cucumber tree, white ash, eastern hemlock, and red maple dominate the overstory. The remaining 57 percent of the area has a site index of 60 or less, indicating a moderate to low productivity for tree growth. White oak, northern red oak, and hickory

generally occur on north and west aspects. Chestnut oak, scarlet oak, and yellow pine occur on ridgetops and exposed south and east midslope aspects with yellow pine occurring on the driest sites.

#### CURRENT USE

The area is primarily used for dispersed recreation activities such as hunting, fishing and illegal ATV use. Approximately 71 percent, or 1,376 acres, are classified suitable for timber production within the area. A private inholding is located between the roadless area and Shawvers Run Wilderness. The inholding contains a cabin on it which is accessed via a road, with prescriptive right, that intersects with FDR 5008. The southern tip of the area has a powerline running through it adjacent to VA 311. The U.S. military conducts daily low level training flights over this area. A military training jet crashed into the nearby Shawvers Run Wilderness in 1994. Inventory data indicate 126 acres of privately owned, outstanding or reserved, mineral rights underlying Federal surface ownership.

#### APPEARANCE OF THE AREA AND CHARACTERISTICS OF SURROUNDING CONTIGUOUS AREAS

The 0.47 miles of improved and 0.66 miles of unimproved road in the roadless area are visually evident and influence ecological processes, as a minimum, in the vicinity of the roads. Many old access roads and logging roads still exist and are evident; however, lack of maintenance and use is allowing some of them to become overgrown and regain a more natural appearance. Other old roads are being kept open by frequent illegal ATV traffic.

Most of the area was cut over and frequently burned in the early 1900's. Approximately 76 percent of the timber in the area is in the 21 - 100 year old age class, seven percent is in the 101 plus years class, and two percent is in the 11-20 year age class. No acres are in the 0-10 year age class. There is no inventoried possible old growth in this roadless area.

Featured species for the area is primarily wild turkey. Gray squirrel, quail, and woodcock are also featured over small areas of the roadless area. There are five wildlife openings totaling approximately 29 acres. The openings are regularly maintained by mowing by the Forest Service and Virginia Department of Game and Inland Fisheries and are visually evident. The Virginia Department of Game and Inland Fisheries has also planted over 1400 shrubs throughout the area that benefit a variety of game and non-game wildlife species.

The area is bounded to the east by Shawvers Run Wilderness. The remainder of the area is bordered by private and other National Forest lands. Private lands are generally a combination of farms, pastures, forests, woodlots, and some residences, barns, and other outbuildings. Steel Bridge Campground, a 20 campsite facility, is located just outside the roadless area on the north side of Potts Creek.

#### KEY ATTRACTIONS

The area is popular with hunters and anglers. Steel Bridge Campground is located in close proximity to the roadless area. The federally endangered James spinymussel is known to occur in Potts Creek along the western boundary of the area. The species is globally rare.

### Wilderness Capability

#### NATURAL INTEGRITY AND APPEARANCE

Natural processes are operating within the area but the area is somewhat affected by outside forces. Much of the Shawvers Run Wilderness Addition roadless area appears to be natural but there are signs of disturbance. There are 31 acres of 11-20 year old age class

SHAWVERS RUN WILDERNESS ADDITION

timber, 29 acres of maintained wildlife clearings, approximately 0.47 miles of improved and 0.66 miles of unimproved road, and many old access and logging roads within this area. A private inholding is located between the roadless area and Shawvers Run Wilderness. The inholding is accessed by a road, FDR P2, that runs through the roadless area.

#### OPPORTUNITY FOR SOLITUDE, CHALLENGE, AND PRIMITIVE RECREATION

The Shawvers Run Wilderness Addition roadless area is 1,926 acres in size and is located entirely on National Forest land. However, there is a private inholding located between this roadless area and Shawvers Run Wilderness. A road that accesses this property also runs through the roadless area. Landform consists of the ridgetop of Middle Mountain and several knobs divided by a series of sideslope drainages. Elevations range from 1,720 feet near Steel Bridge Campground to 3,148 feet at a point along the crest of Middle Mountain. A solitude core area of 612 acres exists along the upper reaches of Middle Mountain and adjacent to Shawvers Run Wilderness. A solitude core area refers to the semi-primitive Recreation Opportunity Spectrum (ROS) setting identified in the roadless inventory. The relationship of core acres of solitude to the roadless area is approximately 32 percent. If this roadless area were added to the adjoining Shawvers Run Wilderness, the wilderness would increase in size to 5,393 acres.

Terrain in the area is generally gentle to moderately sloping except along the upper reaches of Middle Mountain where slopes can be characterized as steep and rugged, offering the visitor opportunities for self-reliance and challenge in orienteering and backcountry primitive camping. Noises from surrounding private lands, state highways, and FDR's can be heard along the boundary, particularly near the northern and western boundaries. The northern end of the area is adjacent to Steel Bridge Campground. Daily flyovers from U.S. military training aircraft can also heard within the area.

It is possible that one may encounter life-threatening situations but one does not expect them. It is possible that one may become lost. Level of personal risk increases as one gets further away from the edge of the roadless area and away from roads. Within the area there are isolated and remote areas but there is a degree of evidence of human impact including roads, maintained wildlife clearings, and past timber harvests. The features of the area require the visitor to use a degree of outdoor skills to traverse the area.

This roadless area does present a range of dispersed recreational activities of which are typically found on the Jefferson National Forest. Activities such as hunting, fishing, hiking, and primitive camping are present in the area.

#### SPECIAL FEATURES (ECOLOGICAL, GEOLOGICAL, SCIENTIFIC, EDUCATIONAL, SCENIC, HISTORICAL, AND RARE PLANTS AND ANIMALS)

Shawvers Run Wilderness Addition roadless area is in the Ridge and Valley Subsection of the Northern Ridge and Valley Ecosystem Section. This ecosystem subsection and section is represented by the following wildernesses, totaling 32,312 acres, on the Jefferson National Forest: Shawvers Run, Barbours Creek, Peters Mountain, Mountain Lake, Kimberling Creek, and Beartown. Within the Southern Appalachians, 11 wildernesses and 43 roadless areas are classified within this subsection.

Two existing wildernesses are in the vicinity of this roadless area. Shawvers Run Wilderness adjoins the southeast boundary of the roadless area while Barbours Creek Wilderness is located approximately four air miles to the east.

Geologic rock types of this area are dominated by sandstone and shale. Sandstone is found on the upper slopes and ridge tops. Shale and limestone are the bedrock on the lower slopes.

There are no designated Research Natural Areas or Experimental Forests within the roadless area.

The majority of the area, 65 percent, is in the Dry Mesic Oak ecological community type while 32 percent of the area is in the Dry/Dry-Mesic Oak-Pine type. The remaining three percent is composed of the Xeric Pine/Pine-Oak, Mixed/Western Mesophytic and Conifer/ Northern Hardwood ecological community types.

There is no inventoried possible old growth in this area.

The Federally endangered James spinymussel is known to occur in Potts Creek, adjacent to the roadless area. There are no other known proposed, endangered, threatened, or sensitive species in the area.

Approximately 69 percent of the area is classified as having high existing scenic integrity.

#### SIZE, SHAPE, AND MANAGEABILITY

The size and shape of this roadless area, when combined with the existing Shawvers Run Wilderness, makes its preservation as potential wilderness practical. There is; however, a narrow tract of land that extends west toward VA 311 along the ridge of Middle Mountain which is surrounded on three sides by private land. Additionally, 45 acre private inholding is wedged between this roadless area and the Shawvers Run Wilderness. If this roadless area became a federally designated wilderness, this private land would be an inholding within a wilderness. Activities within this private land, including the access road, have the potential to impact wilderness attributes. Most of the boundary follows property lines and human improvements such as roads. Surrounding lands are approximately one-half private and one-half National Forest lands. There are 126 acres of privately owned mineral rights within the roadless area.

#### BOUNDARY CONDITIONS, NEEDS, AND MANAGEMENT REQUIREMENTS

Most of the boundary follows human made features such as roads and property line boundaries as well as natural features such as streams. An offset from boundary roads would enhance the wilderness characteristics of the area by avoiding impacts that are a result of engineering work to the road (brush clearing, grading, culvert installation and cleaning, paving, gravel placement, road alignment, etc.). An offset of 300 feet from the centerline of existing roads is recommended.

### Availability for Wilderness

#### RECREATION, INCLUDING TOURISM

There are no developed recreation facilities within this roadless area; however, Steel Bridge Campground is located adjacent to the area's northwestern boundary. Hunting and fishing are the most popular recreational uses. The area adjoins the existing Shawvers Run Wilderness. No impacts to established, legal recreation uses would be expected should this roadless area be designated as wilderness.

#### WILDLIFE

This roadless area provides habitat for a diversity of wildlife species. The featured species

SHAWVERS RUN WILDERNESS ADDITION

for the area is primarily wild turkey, with smaller areas dedicated to featuring gray squirrel, quail, and woodcock. The Federally endangered James Spiny mussel is known to occur in Potts Creek adjacent to the area. Maintenance of the 29 acres of wildlife openings would be discontinued should this roadless area be designated as wilderness.

#### WATER AVAILABILITY AND USE

The roadless area drains into Potts Creek. A portion of Valley Branch, which supports wild trout, flows through the area. There are no known water storage needs or any existing special use water permit authorizations in the area. Water quality is expected to remain at its current level whether or not the area is designated as wilderness.

#### LIVESTOCK, TIMBER, AND MINERALS

There are no livestock operations or potential for such operations. Approximately 71 percent, or 1,376 acres, is classified as suitable for timber production. In the last 10 years, no timber has been harvested. Timber harvest, and the associated production of wood products from this area, would be precluded by wilderness designation. The 1,376 acres of suitable lands in this roadless area represents 0.4 percent of all lands suitable for timber production on the Jefferson National Forest. This roadless area is near the southwestern edge of the Clifton Forge iron district (1957, Lesure, F.G.). Iron mining in this district started before 1800 and ended by 1925. This district also contains small, low-grade manganese deposits that were prospected, but not extensively developed (1988, U. S. Geological Survey Bulletin 1758). The roadless area is estimated to have a high potential for the occurrence of manganese and iron (hematite and limonite), but a low potential for the development of these minerals. The area was leased for Federal oil and gas in the 1980's. No oil or gas wells were drilled and the Federal lease expired. Private subsurface minerals ownership is held on 48 acres within this area. No Federal oil and gas leases or other Federal mineral leases are in effect in this area as of December 1999. The potential for energy minerals, primarily natural gas, is estimated to be low to moderate. The potential for other Federal leasable minerals, including metallic minerals, is estimated to be low.

#### CULTURAL RESOURCES

As of March, 1998, no cultural resource surveys have been conducted within this roadless area. The area exhibits a low potential for prehistoric and historic resources.

#### LAND USES

The Craig-Botetourt Electric Co-op possesses a special use authorization for a utility pole line adjacent to the southwestern corner of the roadless area. The Co-op also is also authorized to use the unimproved portion of FDR 5008 to access and maintain their pole line. The access road, FDR P2, leading to the private inholding located between the roadless area and the Shawvers Run Wilderness is under a prescriptive right-of-way. No other special use permit authorizations have been issued for land uses in this roadless area.

#### MANAGEMENT CONSIDERATIONS (FIRE, INSECTS/DISEASE, AND NON-FEDERAL LANDS)

Present fire control techniques could be altered if this roadless area was designated wilderness. Mechanized ground-fire suppression is an important management tool that would be lost unless specifically approved in a wilderness resource management plan. Wilderness designation may limit options for containing fires. Gypsy moth infestations were reported to be in the vicinity of this roadless area in 1999. Mortality can be severe

(up to 25-30 percent) and oaks are the preferred hosts. Approximately 97 percent of the area is composed of the Dry Mesic Oak and Dry/Dry Mesic Oak-Pine ecological community types. Wilderness designation would make control of insect and disease infestations more difficult, thus increasing the chances that they may spread to other National Forest or private land.

**Need**

See Wilderness Need-Roadless Area Evaluations at the end of this Appendix.

# WILDERNESS NEED

The following discussion is intended to inform the 37 roadless areas evaluations as to Need. While each of the individual evaluations identifies in geographic terms the nearest designated wilderness, a discussion of wilderness need was felt to be most informative and meaningful at a forest scale.

The concept of wilderness is multifaceted as envisioned by the authors and framers of the 1964 Wilderness Act. As such there are a number of factors to consider in assessing the need for additional wilderness.

Outdoor recreation is one of the benefactors of wilderness and is one of the drivers of wilderness demand and wilderness management. According to trend data collected from 1965 to 1994, the trend in recreation visits to National Forest Wilderness has paralleled designations and increased over time (Cordell, 1999). In the Southeast and in the Jefferson National Forest Market Area, participation rates and trends in wilderness indicate a continued increase in visitation to wilderness, climbing an estimated 171% to approximately 5,640,000 visits by people within the forest market area by the year 2050 (see FEIS Table 3-119 in Developed and Dispersed Recreation discussion).

Ecosystem representation is another important factor in considering the need for additional wilderness. Another consideration is the relative proportion of wilderness within the state

Table C-1. Projected Wilderness Visits for the Jefferson National Forest

| Actual | | Projected | | Projected | |
|---|---|---|---|---|---|
| 2000 | Visits/Acre | 2010 | Visits/Acre | 2050 | Visits/Acre |
| 42,830 | 0.74 | 53,538 | 0.93 | 73,239 | 1.27 |

and region.

RECREATION USE OF EXISTING WILDERNESS AREAS ON THE JEFFERSON NF

Based on the recent NVUM project (2001), wilderness visitation on the forest totaled an estimated 42,830 visits. Table C-1 shows forest-wide wilderness visits and use density (visits/per acre) in 2000 (NVUM) and projected for 2010 and 2050 (Cordell 1999).

Wildernesses receiving the greatest amount of use on the Jefferson National Forest include Lewis Fork, Little Wilson Creek, Mountain Lake, Peters Mountain, and James River Face (SAA, 1996 and local Ranger District staff knowledge). A combination of factors probably influences this use.

Lewis Fork and Little Wilson are within the Mount Rogers National Recreation Area (NRA)

WILDERNESS NEED

and in close proximity to Grayson Highlands State Park. They contain outstanding scenery from high elevation open meadows and balds unusual in the eastern U.S. They also have a well-developed network of trails, including horse trails which connect to horse camps in both the State Park and NRA.

Mountain Lake is close to Blacksburg and Virginia Tech, as well as immediately adjacent to Mountain Lake Resort. This wilderness contains the popular attractions of Wind Rock and old growth forest along War Spur Trail.

Peters Mountain is also within an hour's drive of Blacksburg and Virginia Tech. James River Face lies next to the Blue Ridge Parkway and is within an hour's drive from Roanoke. The area contains the Devil's Marbleyard, an unusual talus slope formation that is a popular day hike.

The Appalachian Trail (AT) meanders through portions of James River Face, Thunder Ridge, Mountain Lake, and Peters Mountain, Lewis Fork, and Little Wilson Creek and skirts the edges of Beartown Wilderness. The AT brings some recreation use, particularly in late-April, May, and early-June when the through-hikers are coming north through Virginia. The remaining wildernesses on the Forest receive some hunting use and little else.

The Southern Appalachian Assessment asked "Is there a relationship between the amount of use wildernesses are receiving and their proximity to major population centers?" Proximity to a major city does not appear to explain the amount of use a wilderness receives. For example, Lewis Fork and Little Wilson Creek Wilderness Areas receive the highest use on the Jefferson NF, but these areas are further from major metropolitan areas than other areas receiving much lower use. Roanoke and Blacksburg clearly influence some of the use in Mountain Lake and James River Face; however, Barbours Creek, Shawvers Run, and Peters Mountain are just as close and don't receive nearly as much use.

**Table C-2. 1993 Estimated Annual Wilderness RVD's and RVD's per acre by wilderness.**

| Wilderness Area | 1993 RVDs | Acres | RVDs/Acre |
|---|---|---|---|
| Lewis Fork | 25,350 | 5,618 | 4.51 |
| Mountain Lake | 15,600 | 11,113 | 1.4 |
| Little Wilson Creek | 11,700 | 3,613 | 3.24 |
| Peters Mountain | 9,200 | 3,328 | 2.76 |
| James River Face | 4,466 | 8,886 | 0.5 |
| Barbours Creek | 2,650 | 5,382 | 0.49 |
| Little Dry Run | 1,950 | 2,858 | 0.68 |
| Beartown | 1,540 | 5,609 | 0.27 |
| Shawvers Run | 1,350 | 3,467 | 0.39 |
| Thunder Ridge | 1,334 | 2,344 | 0.57 |
| Kimberling Creek | 1,320 | 5,542 | 0.24 |

Table C-2 shows 1993 Recreation Visitor Days (RVD's) for each of the Jefferson's 11 wildernesses (SAA, 1996). Increases in wilderness visitation are assumed to increase substantially over the next five decades (Cordell, 1999 and Overdest and Cordell, 2001). Table C-3 displays this projection and increase by wilderness.

The four heaviest used units can be expected to continue to receive relatively heavy use and become more crowded. Wilderness additions or use limits could reduce the use

**Table C-3. Projected Wilderness RVD's**



| Wilderness Area | Acres | Actual 1993 RVDs | Actual RVDs/Acre | Projected 2050 RVDs | Projected RVDs/Acre |
|---|---|---|---|---|---|
| Lewis Fork | 5,618 | 25,350 | 4.51 | 43,349 | 7.72 |
| Mountain Lake | 11,113 | 15,600 | 1.4 | 26,676 | 2.4 |
| Little Wilson Creek | 3,613 | 11,700 | 3.24 | 20,007 | 5.54 |
| Peters Mountain | 3,328 | 9,200 | 2.76 | 15,732 | 4.73 |
| James River Face | 8,886 | 4,466 | 0.5 | 7,637 | 0.86 |
| Barbours Creek | 5,382 | 2,650 | 0.49 | 4,532 | 0.84 |
| Little Dry Run | 2,858 | 1,950 | 0.68 | 3,335 | 1.17 |
| Beartown | 5,609 | 1,540 | 0.27 | 2,633 | 0.47 |
| Shawvers Run | 3,467 | 1,350 | 0.39 | 2,309 | 0.67 |
| Thunder Ridge | 2,344 | 1,334 | 0.57 | 2,281 | 0.97 |
| Kimberling Creek | 5,542 | 1,320 | 0.24 | 2,257 | 0.41 |

growth somewhat but it is does not follow that designation of additional wildernesses nearby would have that effect.

### EXISTENCE AND BEQUEST DEMAND

In addition to outdoor recreation in wilderness, there is a non-user component that values American wilderness and is important to understand when analyzing roadless areas, allocations and the need for additional wilderness. Studies have shown that the non-visiting general public values the knowledge that particular natural environments exist and are protected. This motivation can be considered an existence benefit. Another off-site benefit is the benefit the current generation obtains from knowing that protection today will provide Wilderness to future generations. Existence and bequest motivations are sometimes referred to as non-use or passive use benefits. Several studies have shown the importance and value people place on these passive use benefits of wilderness (Cordell, 1999). These values or needs are reflected in the National Survey on Recreation and the Environment (NSRE, 2001) finding that 69.8% of those surveyed agreed or strongly agreed to the question, "How do you feel about designating more federal lands in your state as wilderness?" Over 96 percent agreed or strongly agreed with the statement, "I enjoy knowing that future generations will be able to visit and experience wilderness areas."

### SURVEY RESULTS

The Public Survey Report for the Southern Appalachian National Forests, George Washington and Jefferson National Forests showed the percentages of local residents in the Jefferson Market Area (within 75 miles of the Jefferson National Forest boundary) who placed importance on emphasizing the following stated management objectives:

1. Protect sources of clean water (95%)
2. Maintain forests for future generations (94%)
3. Provide habitat for abundant wildlife and fish (91%)
4. Use and manage forests in ways that leave them natural in appearance (91%)
5. Emphasize planting and management of trees for healthy forests (90%)
6. Protect rare, unique, or endangered plant and animal species (85%)
7. Provide information and educational services (83%)
8. Provide quiet and natural places for personal renewal (81%)
9. Provide access, facilities and services for outdoor recreation (77%)

**WILDERNESS NEED**

In the Southern Appalachians, the survey results were as follows:

1. Protect sources of clean water (94%)
2. Maintain forests for future generations (93%)
3. Provide habitat for abundant wildlife and fish (89%)
4. Emphasize planting and management of trees for healthy forests (88%)
5. Use and manage forests in ways that leave them natural in appearance (86%)
6. Protect rare, unique, or endangered plant and animal species (83%)
7. Provide information and educational services (80%)
8. Provide quiet and natural places for personal renewal (76%)
9. Provide access, facilities and services for outdoor recreation (74%)

Nationally the results were as follows:

1. Protect sources of clean water (95%)
2. Maintain forests for future generations (94%)
3. Provide habitat for abundant wildlife and fish (90%)
4. Use and manage forests in ways that leave them natural in appearance (88%)
5. Protect rare, unique, or endangered plant and animal species (86%)
6. Provide information and educational services (81%)
7. Emphasize planting and management of trees for healthy forests (79%)
8. Provide quiet and natural places for personal renewal (77%)
9. Provide access, facilities and services for outdoor recreation (71%)

The first three values; commonly held across Virginia, the South, and the Country, can be provided in wilderness. They can also be provided outside of wilderness in the general forest area.

Providing habitat for abundant wildlife and fish can require active vegetation management. Some wildlife thrives in wilderness-like conditions, in other words: large unroaded and undisturbed blocks of forest. Other wildlife species need the various successional stages created from disturbances. Within wilderness, these disturbances will be from natural causes: wind, ice, fire, landslides, insects or diseases. Outside of wilderness, these natural processes can be supplemented and mimicked by harvesting trees and prescribed fires.

People across the Southern Appalachians (SA), and within 75 miles of the Jefferson Forest boundary (JNF) were asked how important is designating more wilderness to you? The response was 67% for the Southern Appalachians and 66% for the Jefferson National Forest. People were also asked how important is it to allow a diversity of uses such as grazing, recreation, and wildlife habitat to you? The response was 65% for the Southern Appalachians and 67% for the Jefferson National Forest.

ECOSYSTEM REPRESENTATION

An important consideration in wilderness supply and demand is ecosystem representation. Wilderness is valued for preserving representative natural ecosystems, diversity of landscapes and for research.

The vast majority of the Jefferson National Forest lies within M221, the Central Appalachian Broadleaf Forest-Coniferous Forest-Meadow Province. One ridge (Wallen Ridge) on the Clinch Ranger District lies in Province 221, the Eastern Broadleaf Forest (Oceanic) Province. This Province contains no inventoried roadless areas, or potential areas the public asked us to consider during the roadless inventory.

**Table C-4. Ecological Representation of Wilderness Areas on the JNF**

WILDERNESS NEED

| Section | | SubSection | | Acres |
|---|---|---|---|---|
| M221A | Northern Ridge & Valley | M221Aa | Ridge and Valley | 34,342 |
| | | M221Ab | Great Valley | 227 |
| M221C | Cumberland Mountains | M221Ce | Pine & Cumberland Mountain | 0 |
| | | M221Cb | Eastern Coalfield | 0 |
| | | M221Cc | Black Mountains | 0 |
| M221D | Blue Ridge Mountains | M221Da | Northern Blue Ridge | 11,255 |
| | | M221Dc | Southern Blue Ridge | 11,935 |

**Table C-5 Ecological Representation of Roadless Areas on the JNF**

| Section | | SubSection | | Roadless Acres | Wild/Rdlss TOTAL |
|---|---|---|---|---|---|
| M221A | Northern Ridge & Valley | M221Aa | Ridge and Valley | 123,503 | 157,845 |
| | | M221Ab | Great Valley | 1,358 | 1,585 |
| M221C | Cumberland Mountains | M221Ce | Pine & Cumberland Mountain | 2,892 | 2,892 |
| | | M221Cb | Eastern Coalfield | 0 | 0 |
| | | M221Cc | Black Mountains | 1,869 | 1,869 |
| M221D | Blue Ridge Mountains | M221Da | Northern Blue Ridge | 1,140 | 12,395 |
| | | M221Dc | Southern Blue Ridge | 22,358 | 34,293 |

Currently at the forest scale, the Blue Ridge and Northern Ridge and Valley Sections and their respective subsections occurring within the Jefferson National Forest are represented by at least one of the 11 designated wildernesses (see also Table 3-141 in the Wilderness and Roadless discussion). Representation of Congressionally designated wilderness areas by acres within the Sections and Subsections which contain Jefferson National Forest System lands are shown in Table C-4.

Representation of inventoried roadless areas within the Sections and Subsections which contain Jefferson National Forest System lands are shown in Table C-5. The Cumberland Mountains Section (M221C) on the Clinch Ranger District currently has no congressionally designated wilderness. The North Fork of the Pound is the only inventoried roadless area within this section.

Cordell (1999) calculated the ratio of wilderness to ecoregion area to determine representation of wilderness. Province M221 contains 0.6% of the National Wilderness Preservation System (NWPS) area and 2.3% of the total land area in the Continental United States area, yielding a ratio of 0.26. A ratio of at least 1 would be considered adequate representation. This indicates that Province M221 is currently underrepresented in the NWPS and thus under protected.

GEOGRAPHIC REPRESENTATION

The entire eastern United States is poorly represented in the National Wilderness Preservation System in comparison to the West. This is strongly correlated to the fact that the eastern United States does not have much land managed by Federal Land Management agencies (the Forest Service, Park Service, Bureau of Land Management, and U.S. Fish and Wildlife Service).

**WILDERNESS NEED**

Obviously, designation of wilderness is much more than a numbers game; however, the role of a need or supply/demand analysis is to attempt to answer the question: How much do we need? Since the answer to this question is purely philosophical, it is difficult to discuss it without looking at where we are in relation to other national forests considering what is realistically possible when dealing with a land base highly fragmented by private lands.

Approximately six percent of the National Forest System (NFS) lands within the Commonwealth of Virginia are congressionally designated wilderness, which ranks it 25th nationwide. Wyoming is ranked 1st with 34% of the NFS lands designated wilderness. Alaska has the highest percent of wilderness acres overall (15% of the State), but this includes lands other than NFS. If an additional 156,100 acres of recommended wilderness study areas (the maximum of all the alternatives) were designated by Congress, Virginia would rank 11th in percent wilderness at 15.3% of NFS lands in wilderness.

In terms of percent of the National Forest designated as wilderness, the Jefferson currently has 8%. If an additional 156,100 acres of recommended wilderness study areas (the maximum of all the alternatives) were designated by Congress, the Jefferson would be 30%. By comparison, the Chattahoochee-Oconee currently has 13% and 2 national forests in the northeast (the White Mountain in New Hampshire and Green Mountain in Vermont) have 14% and 15% respectively.

# Wild and Scenic Rivers
## ELIGIBILITY DETERMINATION

APPENDIX D

## INTRODUCTION



This appendix contains eligibility evaluations of fourteen rivers located in or adjacent to the Jefferson National Forest for inclusion in the National Wild and Scenic Rivers System. The evaluations also determine the potential classifications as a wild, scenic, or recreational river for those evaluated rivers determined to be eligible.

As used in the National Wild and Scenic Rivers Act, the term "river" means a flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, creeks, runs, kills, rills, and small lakes.

This Appendix explains the process for eligibility determinations and gives the eligibility criteria for scenic, recreational, geologic, wildlife, fisheries and aquatic, botanical/ ecological and heritage/cultural values.

The next section lists suitability criteria. A determination that a river is eligible does not necessarily mean that it will meet suitability criteria. If a river is found to be suited and is recommended for designation by the Forest Service, it goes before Congress as a candidate for designation into the National Wild and Scenic Rivers System.

The remainder of the Appendix contains the actual evaluations of candidate rivers and the classifications assigned.

## THE PROCESS: HOW RIVERS ARE EVALUATED

The first step in the process is the identification of the more outstanding rivers within the Jefferson National Forest and a determination whether those identified are eligible to be added to the National Wild and Scenic Rivers System. If found eligible, the second step is to make a determination as to the potential classification of the river, either as a national wild, scenic, or recreational river.

The Forest Plan does not identify rivers or streams that were evaluated or found eligible for Wild and Scenic Rivers designation. The Land and Resource Management Planning Handbook, Forest Service Handbook 1909.12, Chapter 8, gives direction for identification and evaluation of rivers. Fourteen rivers within the Forest were identified for evaluation. Russell Fork, one of those identified for evaluation, was the only river on the Forest in the Nationwide River Inventory (NRI) developed by the National Park Service, U.S. Department of Interior. FSH 1909.12 provides direction that each river identified in the NRI that crosses National Forest System (NFS) lands should be studied as part of the forest land management planning process. FSH 1909.12 also provides direction that other rivers can be identified in the land management planning process.

Personnel from the Forest's six ranger districts first provided input about rivers they considered most outstanding on their districts. The FS evaluation team met two times to consider Forest Service and state input, and input from other contacts with river interests in Virginia. To help complete the evaluation and potential classification of the rivers identified, the Jefferson NF involved district rangers and district employees; forest staff

**THE PROCESS: HOW RIVERS ARE EVALUATED**

officers; forest specialists in resource areas being evaluated; non-Forest Service resource specialists in the different resource areas; Dick Gibbons, Virginia State Rivers coordinator; Bob Munson, planner with the Virginia Department of Conservation and Recreation; Dr. Paul Angermeier, Dept. of Fisheries and Wildlife Sciences, Virginia Tech; Dr. Joe Roggenbuck, School of Forestry, Virginia Tech; Randi Lemmon, National Committee for the New River and American Rivers; Tom Klatka, Roanoke Regional Preservation coordinator; Joe Williams, Virginia Commission of Game and Inland Fisheries; and Morgan Jones, Kentucky Wild Rivers program coordinator.

Table D-1 Rivers Studied for National Wild and Scenic Rivers System Eligibility

| River | County, State | Length Total | NFS Ownership *Left Bank | NFS Ownership *Right Bank |
|---|---|---|---|---|
| Little Stony Creek | Giles, VA | 3.2 | 3.2 | 2.8 |
| Stony Creek | Giles, VA | 8.3 | 7.0 | 6.0 |
| Clinch River | Scott, VA | 5.5 | 0.4 | 0.0 |
| Devil's Fork | Scott, VA | 3.8 | 3.7 | 3.7 |
| Guest River | Wise & Scott, VA | 6.5 | 3.5 | 1.7 |
| Little Stony Creek | Scott, VA | 8.5 | 8.5 | 8.5 |
| Roaring Branch | Wise, VA | 3.0 | 3.0 | 3.0 |
| Russell Fork[1] | Dickenson, VA & Pike, KY | 8.7 | 0.0 | 4.4 |
| James River | Botetourt, Rockbridge, Amherst, & Bedford, VA | 23.0 | 10.0 | 0.0 |
| North Creek | Botetourt, VA | 7.0 | 7.0 | 7.0 |
| Whitetop Laurel/ Green Cove Creeks | Washington, VA | 12.0 | 10.5 | 10.0 |
| Barbours Creek | Craig, VA | 11.6 | 10.2 | 10.6 |
| Laurel Creek | Bland, VA | 3.2 | 1.1 | 2.6 |
| Little Wolf Creek | Bland, VA | 3.5 | 3.5 | 3.5 |

* Left and Right banks looking upstream

[1] Breaks Interstate Park ownership is left bank 6.5 miles and right bank 3.1 miles

The evaluation criteria for each resource were prepared by consulting sections 1(b) and 2 (b) of the National Wild and Scenic Rivers Act, FSH 1909.12, Chapter 8, and Federal Register, Vol. 47, No. 173, and the Kisatchie National Forest and George Washington National Forest criteria. The criteria were also reviewed by the Regional Office.

The first two steps in the Wild and Scenic Rivers evaluation process are part of the inventory for the Analysis of the Management Situation. This study addresses the first two steps only. The third step in the process assesses the suitability of those rivers found eligible. The suitability study involves extensive public involvement and includes the social/political issues. It determines if there is sufficient support for designation. The suitability study can be made as part of the Forest Plan Revision or later, as time and funding permit.

THE PROCESS: HOW RIVERS ARE EVALUATED

For a stream to be eligible for designation to the Wild and Scenic Rivers System, it must be free-flowing and the adjoining land determined to be "outstandingly remarkable" in one or more of the following values.

ELIGIBILITY CRITERIA

- Scenic
- Recreational
- Geological
- Fisheries/Aquatic
- Wildlife
- Heritage/Cultural
- Botanical/Ecological

As used in the National Wild and Scenic Rivers Act, the term "rivers" means a flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, creeks, runs, kills, rills, and small lakes.

Within each value category, rivers are rated as one of the following:

Class A. Outstandingly remarkable values (ORVs) with national significance, having qualities which are nationally significant.

Class B. Outstandingly remarkable values (ORVs) with regional significance, having qualities significant in the physiographic province.

Class C. Locally significant values, with qualities that are shared with one of the many equally significant rivers in the physiographic province.

Class D. Values locally common to the Forest, with qualities that are common in the local area and in the physiographic province, but with no outstanding qualities.

Since there are three physiographic provinces within the Forest, resource values for each river being evaluated are compared with values of other rivers in the same physiographic province. The three physiographic provinces on the Forest are the Blue Ridge, the Appalachian Plateaus, and the Ridge and Valley.

The National Wild and Scenic Rivers Act sets no specific requirements concerning the length of a river segment being considered, but states that a river segment is of sufficient length if, when managed as a wild, scenic, or recreational river area, the "outstandingly remarkable" values are protected.

The determination of whether a river or river segment contains outstandingly remarkable values is, for the most part, a judgement based on the qualities of a river relative to the other rivers in the physiographic province. Listed below are the eligibility criteria established for the Jefferson National Forest.

## ELIGIBILITY CRITERIA BY RESOURCE

If a river or segment of river is found to have a Class A or B value for any of the resource values and is free-flowing, it would be eligible. The determination is based on professional judgment of Forest Service specialists with input of non-Forest Service specialists from Kentucky and Virginia.

THE PROCESS: HOW RIVERS ARE EVALUATED

ELIGIBILITY CRITERIA

## Recreation Values

Class A. Outstandingly remarkable recreation values with national significance provide recreational opportunities which are, or have the potential to be, unique enough to attract visitors from well outside of the physiographic province and be known at a national level. Significant numbers of visitors would be willing to travel long distances, generally at least a 24-hour trip if by motor vehicle, to use the river resources for recreational purposes. River-related opportunities could include, but are not limited to viewing nature, viewing geological formations or cascades, water sports such as rafting or canoeing, trail use (either non-motorized or motorized), wildlife observations, fishing, hunting, and photography.

Class B. Outstandingly remarkable recreation values with regional significance provide recreational opportunities which are, or have the potential to be, an outstandingly remarkable recreational attraction within the physiographic province and attract, or have the potential to attract, visitors from outside the physiographic province. Significant numbers of visitors would be willing to travel moderate distances, over three hours, to use the river resources for recreational purposes. River-related opportunities could include, but are not limited to viewing nature, viewing geological formations or cascades, water sports such as rafting or canoeing, trail use (either non-motorized or motorized), wildlife observations, fishing, hunting, and photography.

Class C. Locally significant recreational values provide recreation opportunities which are, or have the potential to be, significant for the Forest, however, they are common throughout the physiographic province.

Class D . Locally common recreational values to the Forest provide recreational opportunities that are common throughout the Forest.

## Scenic Values

Each landscape has its own unique natural scenic qualities. This inherent scenic attractiveness is a human perception of the natural beauty of landscape attributes based on the composition of landforms, rockforms, water forms and vegetative cover. Inherent scenic attractiveness also reflects the natural ability of a landscape to produce varying degrees of scenic satisfaction, varying degrees of positive physiological responses such as heart rate deceleration, and varying degrees of positive psychological responses such as general feelings of well-being.

Inherent scenic attractiveness considers not only natural variety, but also unity, vividness, intactness, coherence, mystery, uniqueness, harmony, balance and pattern and is assessed in relation to individual landscape character type (physiographic province). Character type is defined as an area of land that has common distinguishing natural visual characteristics. Scenic value assessment for eligibility in this exercise will utilize concepts and premises set forth in the U.S. Forest Service Scenery Management System (SMS). Rivers and streams that classify as "distinctive" under SMS will qualify for either a Class "A" or Class "B" designation in this study. Those that classify as "typical" will qualify for a Class "C" rating and "indistinctive" will qualify as a Class "D" rating.

It is not appropriate to compare inherent scenic attractiveness of water landscapes in one landscape character type to another. Therefore, during the scenic resource evaluation report, we will look at the scenic values of each river or stream as it compares with others within the same physiographic character type and then determine whether or not it may be outstandingly remarkable on a national scale.

Another measure of the scenic value of an area is the presence of "Special Places." The Scenery Management System describes them as "...specific locations and expanses in outdoor settings that have attractions and features that are identified as unique, different, distinctive, and extraordinary to people." Special places along streams and rivers may range from a particular small cascade and pool with enclosing rocks and vegetation to an entire stream corridor. That presence of moderate to high numbers of special places can increase the scenic value of an area dramatically.

The general scenic eligibility criteria are listed below, followed by inherent scenic attractiveness guidelines for watercourses within the three physiographic provinces. The guidelines will be used to determine within which Class A particular watercourse falls.

Class A . Outstandingly remarkable scenic values of national significance (Distinctive Nationally) include land forms with unusual or outstanding topographic features. Continuously flowing, with numerous flow characteristics, i.e., falls, cascades, rapids, pools, meanders or adjacent "distinctive" landforms, rockforms, or vegetation. The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions. Forest cover is continuous or if broken, has a high degree of vegetation patterns and unusual or outstanding diversity in plant species. Scenery and visual attractions are highly diverse over the majority of the river or river corridor. Special features might include focal points that are visually striking, particularly memorable, or rare in the province, e.g., rock arches, deep potholes, large or unusual trees; exceptional opportunities to view wildlife or wildflowers; important historic or cultural features.

Class B. Outstandingly remarkable scenic values with regional significance (Distinctive Regionally) include land forms with regionally significant topographic features. The landscape elements of landform, vegetation, water, color and related factors are of physiographic province significance. The forest cover is continuous or if broken, has a high degree of vegetation patterns which are regionally significant. Special features such as landforms, rockforms and vegetation are similar to others considered to be "distinctive" within the physiographic province. The river corridor may possess a moderate to high number of "special place" areas.

Class C . Locally significant scenic values indicate some variety in the terrain, but landform features are typical throughout the physiographic province. Forest cover is continuous with some variety in vegetation patterns and a common diversity in plant species. Corridors exhibit what would be considered a typical number of "special places" for the local area.

Class D. Locally common scenic values to the Forest indicate landscape elements, which are common to streams throughout the Forest. An occasional "special place" may be found along the river/stream corridor, but in general the streams and their corridors are non-distinctive.

## Fisheries/Aquatic Values

Class A. Outstandingly remarkable fisheries/aquatic values with national significance feature wild trout and native trout or resident fish populations occurring solely because of the character of the stream. The area within the river corridor provides exceptionally high quality habitat for fish and aquatic organisms of national importance or may provide unique habitat or fish or an essential bridge in habitat conditions for federal- or state-listed threatened, endangered, or sensitive species. Diversity and quality of habitats are important considerations and could, in themselves, lead to a determination of outstandingly remarkable.

THE PROCESS: HOW RIVERS ARE EVALUATED

ELIGIBILITY CRITERIA

Class B. Outstandingly remarkable fisheries/aquatic values with regional significance indicate an area within a river corridor which provides quality habitat for fish or aquatic organisms that are unique to the physiographic province in which the area is located. It is important to recognize diverse habitats since they in themselves could have outstandingly remarkable values.

Class C. Locally significant fisheries/aquatic values indicate high quality fish or aquatic community habitat. These values are usually associated with quality fishing areas, however, these types of areas are common throughout the physiographic province.

Class D. Locally common fisheries/aquatic values to the Forest indicate that fish or aquatic community habitats are not unique, rare, or critical. These areas are common throughout the Forest.

## Wildlife Values

Class A. Outstandingly remarkable wildlife value of national significance include resident wildlife populations that occur only because of the character of the stream and/or the riparian vegetation adjacent to the stream. The area within the river corridor provides exceptionally high quality habitat for wildlife of national significance or may provide unique habitat or a critical link in habitat conditions for federal- or state-listed threatened, endangered, or sensitive species. Diversity of habitats is an important consideration and could, in itself, lead to a determination of outstandingly remarkable.

Class B. Outstandingly remarkable wildlife values of regional significance indicate that the area within the river corridor provides quality habitat for wildlife not common to the physiographic province. Diversity and quality of habitats is an important consideration and could in itself, lead to a determination of outstandingly remarkable.

Class C. Locally significant wildlife values indicate high quality wildlife habitat. These values are usually associated with quality hunting or wildlife viewing areas. However, these habitat types are common throughout the physiographic province.

Class D. Locally common wildlife values to the Forest indicate that the wildlife and wildlife habitats are not unique, rare, or critical. These areas are common throughout the Forest.

## Geologic Values

Class A. Outstandingly remarkable geologic values of national significance, which indicate that, the river or the area within the river corridor contains an example(s) of a geologic feature, process, or phenomena that is rare, unusual, or unique. The feature(s) may be in an unusually active stage of development, represent a textbook example, and/or represent a significant or rare combination of geologic features.

Class B. Outstandingly remarkable geologic values with regional significance indicate that the river or the area within the river corridor contains an example(s) of a geologic feature, process, or phenomena that is rare, unusual, one-of-a-kind, or significant in the physiographic province.

Class C. Locally significant geologic values indicate the geomorphic features and formations may be significant in the forest, but are typical of those commonly found in the physiographic province. There may be opportunities for geologic study.

Class D. Locally common geologic values to the Forest indicate that the geomorphic features are common throughout the Forest and offer no significant geologic features.

## Botanical/Ecological Values

Class A. Outstandingly remarkable botanical and ecological values with national significance indicate that the riparian forest along the river corridor is contiguous, with no human-caused fragmentation. Geologic features, which harbor unique plants or plant communities, may be present, and there are no exotic and/or invading weed species present. The area within the river corridor could provide exceptionally high quality habitat for plant species of national importance or may provide unique habitat for federally listed threatened and endangered species. The occurrence of nationally rare plant species and/or communities could in itself lead to a determination of outstandingly remarkable if it thrives in a high quality habitat.

Class B. Outstandingly remarkable botanical and ecological values with regional significance indicate that the riparian or bottomland forest along the river corridor is contiguous, with no human-made fragmentation. There may be some localized invasion of exotic and/or invading weedy species, however, the invasions are localized enough to be controllable. Geologic features, which harbor plants or plant communities unique in the physiographic province, or the occurrence of plants species or plant communities uncommon or rare in the province, could in itself lead to a determination of regionally outstandingly remarkable if it thrives in a high quality habitat.

Class C. Locally significant botanical and ecological values indicate that the riparian forest along the river corridor remains largely contiguous, however, there may be fragmentation caused by human activity. Locally significant plant communities may be present along the river corridor. There may also be some uncontrolled invasions of exotic weedy species.

Class D. Locally common botanical and ecological values to the Forest indicate that the plant species and/or communities are common to the area. The Forest may be greatly disturbed by artificial means and/or highly fragmented. Other disturbed and/or artificial communities and uncontrollable invasion of exotics may be present.

## Heritage/Cultural Values

Class A. Outstandingly remarkable cultural/historic values of national significance indicate the cultural resource sites within the corridor have unusual characteristics or exceptional research or interpretive values of national significance. These river corridors contain sites of national importance and meet the criteria for listing on the National Register of Historic Places (36 CFR 60).

Class B. Outstandingly remarkable cultural/historic values of regional significance indicate that the river corridors contain sites of regional significance that meet the criteria for listing on the National Register of Historic Places. Sites contain cultural or historic characteristics significant to the physiographic province.

Class C. Locally significant cultural/historic values indicate that the river corridors contain sites of state and local significance that meet the criteria for listing on the National Register of Historic Places. Sites may be similar to other sites known throughout the physiographic region, but are unique to the local area. Some sites may have been disturbed prior to being archeologically recorded. This also includes known sites that have not been evaluated respective to National Register of Historic Places criteria.

Class D. Locally common cultural/historic values to the Forest indicate that the river corridors contain sites common to the Forest or state. Known sites have been determined ineligible for listing in the National Register of Historic Places but may have interpretive value.

## CLASSIFICATION CRITERIA

The second step is a determination of the potential classification. The National Wild and Scenic Rivers Act (Section 2 (b)) states that "if included (in the National Wild and Scenic Rivers System, each river) shall be classified, designated, and administered" as a WILD, a SCENIC, or a RECREATIONAL river area. The classification selection is based on the conditions of the river and the adjacent land at the time of the evaluation. A river may be divided into segments by these classifications, based on current conditions.

A potential classification determination is needed to guide management of the stream and surrounding lands during the period before a Wild and Scenic River's suitability study is made. In addition to protecting and, to the extent practical, enhancing ORVs, management and development of a river identified as eligible for designation and its corridor will not be modified to the degree that eligibility or classification will be affected.

The following three river classifications are possible. A brief definition follows each classification.

Wild River Areas. Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic River Areas. Those rivers or sections that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational River Areas. Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

# SUITABILITY CRITERIA

Determinations of suitability for inclusion in the National Wild and Scenic Rivers System are made by state agencies, the Forest Service, and other federal agencies. Criteria that determine suitability include the following:

- The current status of land ownership and use in the area;
- The reasonably foreseeable uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National Wild Scenic Rivers System;
- The estimated cost of acquisition of land or of an interest in the land if the river area cannot be administered as a wild and scenic river without acquisition or easement as a means of control;
- The public, state, and local government interest in and potential involvement in management and administration;
- The amount and status of outstanding minerals.

# THE EVALUATIONS: INDIVIDUAL RIVER EVALUATIONS AND CLASSIFICATIONS



## LITTLE STONY CREEK - New River Valley Ranger District

The river segment being evaluated for eligibility is approximately 3.2 miles long. It starts at the Jefferson National Forest boundary immediately below the Cascades Recreation Area and goes upstream to the JNF boundary above the Cascades Falls. It is located in Giles County, Virginia.

Little Stony Creek is in the Ridge and Valley Physiographic Province. One distinctive feature of this segment is that it flows in a deeply incised V-shaped mountain valley. The mountainsides rise steeply from the creek to a broad upland over 2000 feet above the creek. The extremely hard sandstone bedrock which caps the mountain tops occasionally breaks off into huge blocks and plunges down the steep slopes. During the Pleistocene period, the slopes bordering Little Stony Creek produced enormous talus deposits which extend down the Creek. The most common feature associated with Little Stony Creek, Cascade Falls, plunges over a sandstone rim and down a shale face.

Little Stony Creek is a tributary of the New River and with a watershed that is 18.8 square miles in size. The average annual streamflow in the channel is 23 cubic feet per second. The segment under consideration has an average gradient of 6.2 percent and includes a number of cascades. Water quality is good.

Existing NFS ownership of the bank along the segment being evaluated is 100 percent on the east side and approximately 2.8 miles on the west side.

Cascade Falls is an outstanding scenic attraction as it falls some 70 ft. into a plunge-pool surrounded by an amphitheater of sandstone and shale cliffs. Mixtures of hemlock, pine, oaks, maples, and other hardwoods clinging to the steep slopes provide a highly textured canopy for a large diversity of understory species including jack-in-the-pulpit, ferns, wildflowers, and many colorful mushrooms. The rock talus that has rolled down from the cliffs above left numerous automobile size boulders in the creek-bed, creating numerous whitewater cascades, pools, and "special place" nooks and crannies.

Little Stony Creek and the Cascades Picnic Site is probably the most frequently used area on the Forest. The Cascades National Recreation Trail (NRT) connects the picnic area just above private lands with the Cascades 3 miles above. Two miles of trail suffered substantial damage in flooding during the winter of 1996, resulting in the "lower" trail being closed. The repairs are funded and Cascades Falls is accessible by a paralleling portion of trail until the lower trail is opened again. The area is extensively used by all ages from young school groups, numerous college students from nearby colleges, to families. A viewing platform near the bottom of the Cascades was completed several years ago and another platform near the top to the falls was completed in December 1996. Major improvements to the picnic grounds and facilities also have been recently completed. Recreation uses for the stream segment include viewing nature and geological features, fishing, day-hiking, and photography.

Special fishing regulations apply to that portion of Little Stony Creek on NFS lands, mostly below the Cascades. These regulations permit fishing only with single hook artificial lures, only trout 9 inches or more can be kept, and no bait may be in one's possession while fishing in these waters. Little Stony is listed by the Virginia Department of Game and Inland Fisheries as a Wild Natural Trout, Class II stream. A stream of such rating is considered a good wild trout stream. Little Stony contains both rainbow and brook wild

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trout. The upper reaches contain native brook trout, but rainbow trout comprise most of the trout populations below the Cascades. It is a popular trout stream.

## Little Stony Creek Eligibility Evaluation

LITTLE STONY CREEK (NRV)

Scenic Values: This segment of Little Stony Creek is certainly distinctive and has outstandingly remarkable scenic values of regional and statewide scenic significance. Its combination of rockform, landform, waterform and vegetation diversity ranks the area above many areas within the Commonwealth. The area exhibits numerous areas that are considered "special places" and has a number of outstanding focal views of its many natural features. The waterfall is one of only a few of this caliber in the physiographic province and state.

A Class B rating, regionally significant, is assigned.

Recreational Values: Little Stony Creek is already a heavily used recreation area with the well known Cascades as the destination of most visitors. With the recent addition of the upper viewing platform and improvements to the picnic area, the area will probably receive even more use. Visitors to Cascades come from a wide area of Southwest Virginia. The recreation opportunities are significant at a regional level, but not at a national level.

A Class B rating, regionally significant, is assigned.

Fisheries/Aquatic Values: Little Stony Creek has a high quality wild trout fishery and is a significant Forest fishery resource.

A Class C rating, locally significant, is assigned.

Wildlife Values: There are no known native or exotic terrestrial wildlife species that are dependent upon this stream for their existence. More so than Big Stony, Little Stony has limited habitat diversity. It has a tremendous amount of exposed rock in the surroundings, but that is not uncommon for the area in general. Much of the common game and non-game species associated with hardwoods of this physiographic province are found around Little Stony.

A Class D rating, locally common, is assigned.

Heritage/Cultural Resource Values: Only one site has been registered along Little Stony Creek. This is the remains of a 19th and 20th century saw mill (steam-driven engine). No other sites have been found along this stream and due to the steepness on either side, it is unlikely. Possible exceptions are small overhangs or rockshelters that may have been overlooked from the trail. Sites that might be found proximal to this creek would be locally common to the Forest.

A Class D rating, locally common, is assigned.

Botanical/Ecological Values: There are no known rare botanical or ecological values.

A Class D rating, locally common, is assigned.

Geological Values: The distinctive V-shaped mountain valley and the Cascades Falls are significant in this physiographic province.

A Class B rating, regionally significant, is assigned.

## Little Stony Creek Eligibility and Classification

Little Stony Creek is eligible for designation under the National Wild and Scenic Rivers Act. Scenic, recreational, and geological values are rated outstandingly remarkable, regionally significant. It is also free-flowing.

A preliminary classification for the 3.2 miles according to FSH 1909, Chapter 8, is for a recreational river. This determination is based mostly on shoreline development and accessibility. Most of the shoreline is accessible by trail and an old road, the upper trail. Two modern overlooks and connecting bridges have been constructed at the Cascades Falls and two laminated stringer foot bridges are under contract as replacement bridges on the lower trail. Also, the Cascades Picnic Area near the lower portion of the stream is adjacent to the stream with no screening.

# STONY CREEK - New River Valley Ranger District

The portion of stream being studied for eligibility is 8.3 miles from the confluence of Laurel Branch to the JNF boundary near the confluence with Nettle Hollow. It is in Giles County, Virginia.

Stony Creek (commonly called Big Stony) is in the Ridge and Valley physiographic province and is a tributary of the New River and drains 38.5 square miles with an estimated average annual flow of 48 cubic feet per second. The boulder and cobble channel has a bankfull width of 40 feet and a gradient of 3.9 percent.

Existing National Forest System ownership of the land along the river consists of approximately 7 miles on the north side and approximately 6 miles on the south bank. State Highway 635 closely parallels the length of this section.

Approximately 3.5 miles of Big Stony Creek forms the boundary of Peters Mountain Wilderness. The Appalachian National Scenic Trail crosses on a laminated wood bridge near the intersection of State Road 635 and Forest Service Road 734, and goes through the Peters Mountain Wilderness to the top of Peters Mountain. A small JNF picnic area and a fully accessible fishing trail, the Cherokee Flats Trail, are nearby.

Stony Creek has varying degrees of scenic attractiveness. The lower portion along State Highway 635 has some areas of bubbling whitewater rushing over cobbles and some boulders. Portions are bounded by attractive rock outcrops and a mixture of streamside evergreen and deciduous tree species. Those areas rate as high scenic attractiveness. The clarity and quantity of the streamflow are in themselves very positive scenic attributes. The highway offers direct close visual association with the stream but to some degree, also detracts from the natural landscape. The upper reaches of the stream are more common to the physiographic province and have limited whitewater, less width, and a more passive meandering flow character. In this upper area, adjacent vegetation is quite dense, which severely limits views of the water from the highway.

Whitewater use of the stream is limited to non-stop runs only at very high water. The experience is described as a western-style flush -- like paddling a flume -- very dangerous and hard to exit. The gradient is steep, over 100 feet per mile for the first 5 miles. There are numerous Class III-IV drops and occasional Class IV-V rapids.

Big Stony is considered one of Virginia's better publicized put-and-take streams with some carryover and wild trout. It is a Class IV Wild Native Trout Stream and is adequately reproducing wild trout populations but has severally reduced summer flow characteristics. It has nearly 6 miles of heavily fished waters. Recreational fishing for stocked trout is a

major activity on Big Stony.

A very important aquatic resource in Big Stony Creek is the candy darter, Etheostoma osburni. The fish population is localized and declining in the lower New River System and its presence is rare to uncommon. The Commonwealth of Virginia lists it as a species of special concern and the Forest Service lists it as a sensitive species.

## Stony Creek Eligibility Evaluation

Scenic Values: Water clarity and quantity with some interesting rock outcrops and instream moderate size boulders are the most positive scenic attributes of this stream. The vegetation mix is generally continuous and is quite typical of other areas in the physiographic province. There is a low to moderate number of "special places" typical of the area along the watercourse. The presence of the state highway in close proximity is a negative deviation to the natural appearing landscape.

A Class C rating, locally significant, is assigned.

Recreation Values: This stream segment is an important recreational river on the Forest, primarily for fishing. It is well published and heavily fished. The Cherokee Flats accessible fishing trail and related facilities add significantly to the recreation value of the stream. Other uses include occasional whitewater use in winter or early spring, hunting, hiking, and viewing nature are other uses of the stream. It is one of the more significant streams on the Forest, but common to the physiographic province.

A Class C rating, locally significant, is assigned.

Fisheries/Aquatic Values: In Virginia, Etheostoma osburni (candy darter) is generally distributed in Big Stony Creek only. Although six other systems of the New River drainage have its critical habitat requirements, recent records do not indicate the presence of candy darter. Furthermore, the fish is endemic to the New River drainage in the Ridge and Valley of Virginia and the Appalachian Plateaus of West Virginia and is experiencing declines throughout its range. Stony Creek provides essential habitat in preventing this species from becoming federally listed.

A Class A rating, nationally significant, is assigned.

Wildlife Values: There are no known native or exotic terrestrial wildlife species that are dependent upon this stream for their existence. The diversity of terrestrial habitats along Big Stony Creek is not considered outstanding. Beaver have created wetlands along stretches of this creek, but these occur primarily in major tributaries leading into Big Stony. A white pine and hemlock component is found here, which is not abundant in the local landscape. Hardwoods occur along the floodplain, as does a heavy holly shrub component. These areas typically provide habitat for a variety of birds that utilize riparian habitats.

A Class C rating, locally significant, is assigned.

Heritage/Cultural Resource Values: There are two registered Native American sites along Stony Creek. There is also a significant amount of floodplain, which increases the probability of Native American sites and village sites from the Woodland prehistoric culture period. There is also a high probability of historic homesteads being found along this stream. The predictive model would indicate a potential for more historic and prehistoric sites that would be locally significant.

A Class C rating, locally significant, is assigned.

Botanical/Ecological Values: There are no known rare botanical or ecological values.

A Class D rating, locally common, is assigned.

Geological Values: Locally geologic values are common throughout the Forest and offer no significant geologic features.

A Class D rating, locally common, is assigned.

### Stony Creek Eligibility and Classification

Stony Creek is eligible for designation under the National Wild and Scenic Rivers Act. Fisheries/Aquatic Values are rated outstandingly remarkable, nationally significant. It is also free-flowing.

A preliminary classification for the 8.3 miles, according to FSH 1909, Chapter 8, is for a recreational river. For the most part, this determination is based on shoreline development and accessibility. The shoreline is largely accessible due to the paralleling state highway. There is also a number of homes on the private lands.

## CLINCH RIVER - Clinch Ranger District

The river segment being evaluated for eligibility is approximately 5.5 miles long. It starts at the confluence with Little Stony Creek and goes upstream to the confluence with the Guest River. The study segment is in Scott County, east of Dungannon, Virginia.

This segment includes two interesting geologic features.

The first feature is its flow across the border between two major physiographic (geomorphic) provinces. The upstream end of this river segment, near the confluence with the Guest River, is located in the Appalachian Plateau Physiographic Province. In this province, the Paleozoic sedimentary bedrock layers are generally horizontal and form a plateau which extends for thousands of square miles. Over time, streams eroded and cut down into this plateau and created a dendritic stream pattern.

As the river flows downstream, it crosses into the Ridge and Valley Physiographic Province. In this province the Paleozoic sedimentary bedrock layers have been folded, faulted, and then eroded into a series of parallel ridges and valleys. Over time, streams cut down into these folded bedrock layers, creating a trellis stream pattern.

Secondly, this river segment flows through karst terrain where sinkholes abound. Many sinkholes are located in the rolling hills just south of this river segment. Some sinkholes are within one-quarter mile of the river's edge.

The Clinch River is a tributary to the Tennessee River. The watershed above the 5.5 mile reach being evaluated is 1,130 square miles. Average annual flow is 1400 cubic feet per second. The river has a low gradient of less than one percent, and the channel is over 200 feet wide.

This segment is on the JNF proclamation boundary and only about 0.4 miles of the Forest borders the river. This river segment does, however, potentially tie into the Guest River management. There are plans to provide public access to the Guest River in Scott County,

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CLINCH RIVER

immediately above the Guest River's confluence with the Clinch. With the Scott County access, recreation opportunities should be improved on the Clinch. This segment of the Clinch also provides a link between the confluence with the Guest River and the confluence with Little Stony. Both are important JNF streams being evaluated for Wild and Scenic River eligibility. On National Forest lands within this segment of the Clinch River, most of the underlying mineral estate is privately owned.

This is a pleasant section of stream, but it has no significant rapids or whitewater. Some of the shoreline is in pasture and there are several cabins and homes. A forested backdrop above the pastoral landscape has areas of exposed rock, which add to the attractiveness of the area. The meandering, slow-moving water brings a restful feeling to those using or viewing this segment of river.

The railroad tracks follow the river. Miller Yard, an old rail yard, is still used for storing cars, but gives the appearance of being abandoned.

An overview of the entire Clinch River is worth noting. A state of Virginia scenic river study made in 1990 of another portion of the Clinch considers the Clinch the most pristine of the Southwest Virginia rivers. The river spans 202 miles and includes distances from the Virginia/Tennessee stateline to its headwaters near Tazewell, Virginia. It is host to many federally and state listed endangered and state-listed threatened aquatic fauna. To date, 11 federally listed endangered mussels and one federally listed endangered fish occupy the Clinch. It has 11 state-listed endangered mussels, six state-listed threatened mussels, four state-listed threatened fish, and one state-listed threatened snail.

This is a popular fishing segment with various cool-water gamefish found. Some notable species include crappie, channel catfish, largemouth bass, smallmouth bass, rock bass, pickerel, and white bass. There are no known threatened, endangered, or sensitive aquatic species in this section.

## Clinch River Eligibility Evaluation

Scenic Values: This river segment has a general overall attractiveness as it meanders along. There is little variety in flow characteristics and the forested and pastoral vegetation is typical of the region. The channel size and quantity of water running through the relatively pristine pastoral setting are the greatest positive attributes. They exhibit some distinctive qualities. The cliff lines add to the attractiveness but are not visually dominant. They are not considered outstandingly remarkable. The number of "special places" and distinctive areas along this segment are normal to low.

A Class C rating, locally significant, is assigned.

Recreation Values: Recreation use is primarily fishing, rafting, and canoeing. With continued development of access on the Guest River, it has the potential to become a more heavily used paddling and fishing stream. In addition, there is potential for additional federal ownership with better public recreation access. The potential for recreation use is significant for the Forest, but common on the larger streams within the physiographic province.

A Class C rating, locally significant, is assigned.

Fisheries/Aquatic Values: The segment under evaluation does not harbor the various threatened, endangered, or sensitive species found in other portions of the Clinch. The evaluated segment contains fisheries and aquatic resources representative of a locally significant, high quality recreational fishery.

A Class C rating, locally significant, is assigned.

Wildlife Values: Although this river is internationally known for its diverse aquatic fauna, its significance to wildlife species is low. The recommended rating for this river is a Class C because it provides habitat for waterfowl and species associated with larger stream systems and small floodplains -- habitat types not common to the local area.

A Class C rating, locally significant, is assigned.

Heritage/Cultural Resource Values: The Clinch River has a number of large heritage/ cultural sites downstream of the study area. The study area offers a high probability of heritage/cultural resources. Topography includes cliff-lines (possible rockshelters), toe ridges, saddles, finger ridges, and a significant amount of flood plain where large Woodland Period Native American villages might be found. Historic homesteads are another distinct possibility along the Clinch. There is potential for finding outstandingly remarkable values with regional significance.

A Class B rating, regionally significant, is assigned.

Botanical/Ecological Values: This segment of stream contains Spiraea virginiana, Virginia spiraea, a plant that has a federally-listed status of threatened and state listed status of endangered.

A Class A rating, nationally significant, is assigned.

Geological Values: This segment of river contains geologic values that are unusual and significant in the physiographic province.

A Class B rating, regionally significant, is assigned.

### Clinch River Eligibility and Classification

This segment of the Clinch River is eligible for designation under the National Wild and Scenic Rivers Act. Heritage/cultural and geological values are rated regionally significant. Botanical/ecological values are rated outstandingly remarkable, nationally significant. It is also free-flowing.

Preliminary classification for the 5.5 miles, according to FSH 10-9, Chapter 8, is as a recreational river. This determination is based on shoreline development and accessibility. The railroad runs the length of the segment with a paralleling road into the Miller Yard.

## DEVIL'S FORK - Clinch Ranger District

The river segment evaluated for eligibility is approximately 3.75 miles from the confluence of Stony Creek at State Route 619, upstream to the Forest 's boundary above Three Forks. It is located in Scott County, Virginia.

Devil's Fork is located near the southeastern border of the Appalachian Plateau Physiographic Province. In this border zone, the bedrock layers are tilted generally in a south and southeasterly direction, at a 5-degree to 15-degree angle of dip. The bedrock along the creek is sandstone and siltstone of the Lee Formation (Pennsylvanian age,

RIVER EVALUATIONS AND CLASSIFICATIONS

DEVIL'S FORK

about 300 million years old).

In the central portion of the stream below Three Forks, the stream flows down the slope of the underlying bedrock layers. In this portion of the stream, the bedrock layers have a tilt (dip) of about 6 degrees to the east.

An old coal prospect is located on the south side of the creek, opposite the mouth of Saint Branch. This area near Saint Branch marks the point where the outcrop of the little Fire Creek coal bed traverses Devil's Fork. Near this area, there is an old coal car and a short road up to the mine spoils and exploration holes. The evidence of past mining is more an area of interest rather than a detraction from the recreation experience.

Devil's Fork is a tributary to the Clinch River. The reach under consideration has a boulder and cobble channel with an average gradient of 6 percent and an average annual streamflow of 16 cubic feet per second. The watershed drains an area of 12.6 square miles.

Existing NFS ownership of the banks is near 100 percent, with only a short section of stream on private land below the Forest boundary and State Route 619.

Devil's Fork is an attractive natural appearing stream with an immature and mature overstory of poplar, hemlock, and birch, with much rhododendron in the understory. The central portion of the stream below Three Forks goes through a gorge with large rock outcrops. In this portion of the stream, the stream flows down the slope of the underlying bedrock layers. These layers have tilt (dip) of about 6 degrees to the east. Many of the side drainages to the north are also in steep rocky drainages with steep gradients. Nearer the top of drainage to the west, some of the less steep branches are in private ownership.

In recent years, a four-mile loop trail was constructed in Devil's Fork drainage and a two-mile side trail to the top of Little Mountain. The lower part of the trail is actually an old logging and coal mining railroad grade that threads its way up the tumbling stream with numerous small cascades. The trail follows and frequently crosses the stream. About 1 1/2 miles up from the parking area, a cascade empties into the Devil's Bathtub, a deep tub-shaped hole carved out of solid rock by the swirling stream. Farther along the trail are the mouth of Corder Hollow and a 20-foot waterfall.

Public interest in the Devil's Fork drainage has been relatively high over the last 15 years, and much of the trail system was constructed by the Devil's Fork Trail Club. Most of the recreation use is day- hiking to the Devil's Bathtub. There is also some backpacking farther up the trail system.

Historical fisheries survey data show the stream once contained brook and rainbow trout. The stream is not presently stocked and does not receive significant fishing activity. Devil's Fork is listed as a class VI fishery. A class VI fishery does not contain a significant number of trout or a significant population of warm-water gamefish.

## Devil's Fork Eligibility Evaluation

Scenic Values: This stream has a number of high scenic attractiveness areas due to the combination of diverse multi-aged overstory of evergreen and hardwood species and a wide variety of understory species. A full range of textures and colors are present. A number of rock outcrops and cliffs can be fully experienced by people walking the trail along the stream. A variety of stream flow characteristics exhibited by small cascades and pools are present. Stream clarity is good with moderate flow in a small- scale landscape. A moderate number of "special places" exist, including the Devil's Bathtub and a small

waterfall. The area has high scenic intactness and is locally significant.

A Class C rating, locally significant, is assigned.

Recreational Values: There has been much work on the public's part to develop the trail system and protect the Devil Fork drainage. Predominate recreation use is hiking in a mostly undisturbed area and viewing several unique stream features. The recreation opportunities are uncommon on the Forest, but common throughout the physiographic province.

A Class C, locally significant, is assigned.

Fisheries/Aquatic Values: Locally common fish and aquatic species are found here and aquatic community habitats are not unique, rare, or critical.

A Class D, locally common, is assigned.

Wildlife Values: This stream lies within an area inventoried in the Roadless Area Review and Evaluation II (RARE II) and the Jefferson Forest Plan Revision Roadless Inventory. While historic disturbance is evident, this area currently receives little disturbance other than recreationists accessing the area along the trail. Due to its roadless character, the area is not common on the District. Rock outcroppings and small cliffs exist along the stream corridor, providing den and shelter sites for a variety of species and possibly roost sites for bats. The northern long-eared myotis was recently documented along this stream course in 1993.

A Class C, locally significant, is assigned.

Heritage/Cultural Resource Values: No heritage/cultural resource surveys have been done around Devil's Fork by forest archaeologists. This area may have sandstone rockshelters that were inhabited by transient Native Americans. Any level areas along Devil's Fork have a high probability of past Native American habitation.

A Class C, locally significant, is assigned.

Botanical/Ecological Values: A Class D rating, locally common, is assigned.

Geological Values: The geologic values are common throughout the Forest and offer no significant geologic features.

A Class D rating, locally common, is assigned.

### Devil's Fork Eligibility and Classification

Devil's Fork is not eligible for addition to the National Wild and Scenic Rivers System. There are no inventoried outstandingly remarkable resources.

## GUEST RIVER - Clinch Ranger District

The river segment evaluated for eligibility is approximately 6.5 miles from the confluence with the Clinch River upstream to State Route 72 bridge just south of Coeburn, Virginia. It is located within Wise and Scott counties, Virginia.

This segment of the Guest River is on the Virginia State Scenic River system.

RIVER EVALUATIONS AND CLASSIFICATIONS

GUEST RIVER

The Guest River is near the southeastern part of the Appalachian Plateaus Physiographic Province. The Guest River has cut a 400 foot deep gorge into hard sandstone layers along the southeastern border of the Appalachian Plateau. Rockslides and flooding are dominant geologic processes shaping the Guest River today as well as for the past thousands of years. The rock cliffs along the gorge are the source of huge blocks of bedrock, which sporadically break away from the cliffs and tumble down into the gorge.

The bedrock layers in the gorge along the river are arched into a gentle fold, which is part of the Powell Valley Anticline. At the mouth of Hurricane Creek, the northeast-treading axis of the Powell Valley Anticline traverses the Guest River.

This river segment is a tributary to the Clinch River. The watershed area above the 6.5-mile reach under consideration is 90 square miles. Average flow is estimated to be 112 cubic feet per second. The channel gradient averages 1 1/2 percent, but drops much faster in places, making it a very technical whitewater stream. The river is free-flowing but does have a concrete diversion structure at one point to protect the railroad grade.

Existing NFS ownership and optioned private land consists of approximately 3.5 miles on the west bank and 1.7 miles on the east bank. The Forest Service has an acquisition plan for purchasing the remaining stream banks, and much of the gorge, to protect the unique qualities and provide recreation access. Most of the underlying mineral estate is privately owned. Most of the gorge is forested, excepting several home sites near the river in Scott County. Future plans include providing public access to the lower end of the gorge from the Scott County side.

Presently, the only public access to the 6.5-mile section is a newly constructed road down to the river from State Route 72. State roads 660 and 661 are to the northwest of the river and Route 660 runs parallel close to the rim of the gorge for about a mile. These roads are not seen from the gorge trail or Guest River, thus providing a feeling of remoteness.

The Guest River leaves the plateau country of Wise County to plunge 320 feet through the sandstone gorge to the Clinch River 6 miles downstream. The stream and the surrounding gorge are lined with large rock outcroppings and chimneys and cliff walls. The stream setting is complete with waterfalls, cascades, large pools, rhododendron, and a thick natural looking forest.

The Guest River and associated gorge is a highly attractive landscape in Southwest Virginia. The steep sandstone cliffs are punctuated with clinging vegetation, both overstory evergreen and hardwood plus a variety of shrubs and herbaceous plants. The stream, visible from the old railroad-grade-turned-hiking-trail, offers many views of whitewater cascades and pools interspersed among rocks and boulders that range from football size to garage size. The historic railroad grade and associated tunnel, and the Native American cultural sites are positive attributes that complement the aesthetic appeal of the area. The area is rated high in attractiveness and scenic integrity under the Forest Service's scenery management system.

In 1991, the Forest Service accepted a donation from Norfolk Southern of 5.57 miles of abandoned railroad through the gorge. Known as Interstate Railroad Company, it spans an area that begins approximately 1000 feet below the bridge on Route 72 to the Guest's confluence with the Clinch. Along with this ownership came interest and expectation from the local communities about development of the unique recreation opportunities within and adjacent to the gorge. Initial funding was made available and was used to prepare a master plan for the area, deck the railroad trestles, harden a portion of the trail for accessibility, acquire some key tracts, including the one needed for the access road, and contract construction of the access road and parking area. In 1993, Wise County received

Intermodal Surface Transportation Efficiency Act (ISTEA) funding to pave the newly constructed access road and parking area. Ultimately, improvements of the entire Guest River Gorge project are anticipated to exceed $2 million dollars. An estimated 25,000 visitors a year are expected when the trail development is complete.

Future plans for the Gorge include three public access points, parking areas, a section of trail that would be made fully accessible, interpretation of the cultural and natural resources in the Gorge, and facilities at each parking area. There is also a strong interest in camping facilities and a hands-on museum nearby. The trail will be open to hiking and bicycle riding and ultimately, a concessionaire may provide rental bicycles and golf carts.

There is some whitewater recreation use on the river, which is considered one of the best heavy duty whitewater rivers in Virginia. It is a highly technical whitewater stream with a difficulty rating of IV-V(VI) and recommended for experts only. It is best run at higher flows after a day of moderate rain during winter or spring.

The Guest River contains a good cool water recreational fishery. Reproducing populations of smallmouth bass, sunfish, and several chub species are found in the stream.

The Guest River Gorge and surrounding area has a high potential for the presence of heritage/cultural resources. The area has been extensively surveyed for these resources in response to timber management, natural gas drilling operations, and road construction. These surveys have produced 35 sites that have been recorded with the State Historic Preservation Officer. The majority of the recorded sites are rock shelters or rock overhangs. There is evidence that some of the shelters were occupied as early as the Early Archaic Native American Culture Period ca. 8500 B.C.

Twenty-four percent of the recorded sites in the Guest River Gorge area have been Phase II surveyed. At least 41 percent of the recorded sites have been disturbed. The disturbance has been extensive, however, there remains a great deal of information to be gained from future scientific investigations.

The Guest River Gorge and its tributaries offer potential interpretive possibilities with regard to the plentiful cultural resources associated with the river.

## Guest River Eligibility Evaluation

Scenic Values: The Guest River and associated gorge are highly distinctive in the Appalachian Plateau physiographic province. The combination of a variety of waterflow characteristics, towering cliffs, variety of vegetation, and huge boulders in and near the river make the area distinctive within the region. It has numerous special places and focal points of visual interest created by its natural elements.

A Class B rating, regionally significant, is assigned.

Recreation Values: When fully developed, it will be used for a variety of recreation activities including whitewater recreation, cool water fishing, cross-country skiing, hiking, bicycling, viewing scenery and wildlife, and interpretation. Much of the trail will also be fully accessible. The project already is a successful partnership with the local communities and will be marketed heavily as one of the major recreation opportunities in Southwest Virginia. It clearly has the potential of drawing a significant number of visitors from other parts of Virginia and surrounding states.

A Class B rating, regionally significant, has been assigned.

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Fisheries/Aquatic Values: The stream contains locally common fish and aquatic species. The aquatic community habitats are not unique, rare, or critical.

A Class D rating, locally common, has been assigned.

GUEST RIVER

LITTLE STONY CREEK (CRD)

Wildlife Values: While the Gorge provides spectacular scenery, access for wildlife species into and out of the Gorge is difficult. Wildlife use is generally limited to species that have relatively small ranges and stay within the Gorge or can fly in and out of the area. The proposed plans for developing this area into a significant recreational spot could further deter mobile wildlife species by creating the risk of harassment or exposure in the Gorge. Although the potential for high quality wildlife habitat exists and one sensitive species, the green salamander (Aneides aeneus), has been documented within the stream corridor, the area does not have enough significance to wildlife to warrant a high classification.

A Class C rating, locally significant, has been assigned.

Heritage/Cultural Resource Values: The Guest River and the surrounding gorge area can be characterized as having a high potential for the presence of heritage/cultural resources. Surveys have produced 35 sites that have been recorded with the State Historic Preservation Officer. The majority of the sites are rock shelters or rock overhangs. While some sites have been disturbed, a great deal of information remains to be gained from future scientific investigations. The Guest River also offers potential heritage interpretive possibilities.

A Class B rating, regionally significant, has been assigned.

Botanical/Ecological Values: This segment of river contains Spiraea virginiana, Virginia Spiraea, a plant that has federally-listed status of threatened, and state-listed status of endangered.

A Class A rating, nationally significant, has been assigned.

Geologic Values: This segment of the river contains examples of unusual and significant geologic features in the physiographic province.

A Class B rating, regionally significant, has been assigned.

## Guest River Eligibility and Classification

The Guest River is eligible for designation under the National Wild and Scenic Rivers Act. Scenic, recreational, heritage/cultural, and geological values are rated outstandingly remarkable, regionally significant. Botanical/ecological values are rated outstandingly remarkable, nationally significant. It is also free-flowing.

The preliminary classification for the 6.5 miles according to FSH 1909, Chapter 8, is for a recreational river. This determination is based on planned and approved access roads and trailhead parking facilities, the planned facilities adjacent to the river, and the paralleling railroad trail and bridges. There is the one diversion structure and substantial evidence of human activity. With the planned access roads and the old railroad bed, the trail is readily accessible.

## LITTLE STONY CREEK - Clinch Ranger District

The portion of stream being studied for eligibility is approximately 8.5 miles from the confluence of Clinch River to Forest Service Route 700, in Scott County, Virginia.

This segment is located along the southeastern border of the Appalachian Plateau physiographic province. In part of this border zone, adjacent to the Ridge and Valley province, geologic forces pushed up and overturned the bedrock layers along the edge of the plateau. The northeast-trending Hunter Valley Fault slices through the mouth of Little Stony Creek. Between the Hanging Rock area and the mouth of Little Stony Creek, the bedrock layers have been folded and overturned by faulting and thrusting. The bedrock layers jut out of the ground at steep angles (30 to 80 degrees angle of dip).

There is a dramatic difference in Little Stony Fork above and below the 2,150 foot elevation near Forest Service Road 701. Upstream from this area, Little Stony Creek flows in a roughly U-shaped valley, incised about 200 feet into the plateau surface. Downstream from this area, Little Stony Creek flows in a deep V-shaped valley, incised 400 to 600 feet below the plateau surface.

This river segment is a tributary to the Clinch River. The 16.4-square-mile watershed has an average annual flow of 20.4 cubic feet per second. The reach under consideration has an average gradient of 3.5 percent. All of the stream banks from the Hanging Rock Picnic Area to FS 700 are in NFS ownership. The remaining approximately one-mile-stretch between the picnic area and the confluence with the Clinch River is in private ownership. Most of the underlying mineral estate is privately owned. Much of the Little Stony watershed is in private ownership and the entire watershed is visible from the stream above Hanging Rock Picnic Area is NFS land.

The stream appears to be in a fairly natural environment. Much of the overstory vegetation is cove hardwood and hemlock. Mountain laurel and rhododendron are abundant in the understory along the stream.

The portion of Little Stony Creek that flows through the U-shaped valley bottom is attractive but fairly typical of other creeks in the physiographic province. The portion downstream from Forest Service Road 701 is distinctively different. Hikers on the streamside-trail experience several waterfalls cascading into pools and bubbling over moderately sized rocks. Water clarity appears high and water flow is generally substantial. The 400 foot high rock cliffs caress a variety of lush vegetation both in the overstory and understory. Many textures are present, created by understory mosses, ferns, mushrooms, rhododendrons, bark, and exposed rocks.

The Little Stony National Recreation Trail parallels the lower portion of the stream downstream from FS 701. The trail was built on the site of an old narrow gauge railroad with foot bridges built on the original rock abutments. A new 100 foot concrete and treated beam foot bridge was recently constructed across a side drainage, Corden Branch. Above FS 701, the Chief Benge Scout Trail follows Little Stony Creek. It runs from the trailhead at FS 701 to High Knob tower. Near the Hanging Rock Picnic Area, there is a large rock outcrop of the Hunters Valley fault for which the Hanging Rock Picnic Area was named. Near the top of the gorge there are several very nice waterfalls and large pools.

There is local interest in reconstructing the Little Stony NRT to make it fully accessible from the trailhead on FS 701 down to the waterfalls just below the upper foot bridge. A small accessible platform overlooking the falls has been suggested.

Little Stony Creek is a stocked trout stream above FS 701. It is listed as a Class VI trout stream by the Virginia Department of Game and Inland Fisheries.

There is one sensitive species, the green salamander (Aneides aeneus).

RIVER EVALUATIONS AND CLASSIFICATIONS

LITTLE STONY CREEK (CRD)

## Little Stony Creek Eligibility Evaluations

Scenic Values: About 50 percent of Little Stony Creek has distinctive visual characteristics in rockform, landform, and waterform. These characteristics combined with an attractive variety of vegetation make the area a distinctive visual asset to the region. A moderate to high number of special places are present in the gorge area.

A Class B rating, regionally significant, is assigned.

Recreation Values: Hiking opportunities are good with the Chief Benge Scout Trail and the Little Stony NRT following the stream. The stream segment also goes through Hanging Rock, a rustic Forest Service picnic area. The drainage is used for hunting, fishing, viewing scenery and nature from several prominent rock outcrops, viewing water falls, and hiking. The recreation opportunities are significant for the Forest, but common within the physiographic province.

A Class C, locally significant, is assigned.

Fisheries/Aquatic Values: The fisheries and aquatic resources represent a locally significant and high quality recreational fishery.

A Class C, locally significant, is assigned.

Wildlife Values: Little Stony Creek lies within a RARE II area but is not inventoried as roadless in the Forest Plan Revision Inventory because of its small size. The stream course flows through a 400-foot deep gorge approximately 1 3/4 miles long and varying in width from 1700 feet to 2,500 feet. The topography is very steep with rock outcrops and the vegetation is oak-hickory changing to oak-poplar in the very bottom. Pitch pine and table mountain pine are found in the rocky bluffs. The understory is rhododendron and mountain laurel. The last logging along the stream corridor occurred in the 1920s. One sensitive species is known to occupy Little Stony Creek in large numbers -- the green salamander (Aneides aeneus).

A Class B, regionally significant, is assigned due to its diversity of habitats, significance to a forest sensitive species, and its roadless character.

Heritage/Cultural Resource Values: No heritage/cultural resource surveys have been done in this area nor are there any registered sties. There is high potential for rockshelters along the stream and sites in the flood plain at the confluence of Little Stony Creek and the Clinch River. There is the potential for locally significant sites.

A Class C, locally significant, is assigned.

Botanical/Ecological Values: There are no known rare botanical or ecological values.

A Class D rating, locally common, is assigned.

Geologic Values: The segment of stream contains examples of geologic features that are unusual and significant in the physiographic province.

A Class B rating, regionally significant, is assigned.

## Little Stony Creek Eligibility and Classification

Little Stony Creek is eligible for designation under the National Wild and Scenic Rivers Act.

Scenic, geological, and wildlife values are rated outstandingly remarkable, regionally significant. It is also free- flowing.

A preliminary classification of the 8.5 miles according to FSH 1909, Chapter 8, is for a recreational river. This determination is based mostly on the development of the NRT with the modern bridge across Corden Branch, road access at Hanging Rock Picnic Area, access to the stream by FS 701, and paralleling FS 700.

## ROARING BRANCH - Clinch Ranger District

This segment of Roaring Branch being studied for eligibility is approximately 3 miles long starting at Alternative Route 58 to its headwaters. Roaring Branch is just outside of Big Stone Gap in Wise Co., Virginia.

This segment is located near the southeastern border of the Appalachian Plateaus Physiographic Province. In this border zone, the bedrock layers have been folded and eroded into long ridges and valleys which are more typical of the nearby Ridge and Valley Province.

Roaring Branch provides a good example of how bedrock structure and geologic processes controlled the development of the stream and the landscape of the Roaring Branch watershed. The Roaring Branch watershed developed on the Roaring Branch Syncline.

The Roaring Branch Syncline developed in ancient geologic time. Deep in the earth, the bedrock layers were folded into a trough or syncline. Later, this section of bedrock was uplifted during the mountain-building process.

At the surface of the earth, erosion cut into the syncline or trough. Erosion carved out a landscape that conforms to the shape and scale of the syncline or trough. This conformity is so close that the valley bottom containing Roaring Branch follows almost exactly the axis of the syncline or trough.

Roaring Branch is an excellent example of a "structural landform" developed by erosion and controlled by the structure of the underlying bedrock.

This steam is a tributary to the Powell River. The average gradient of the reach under consideration is nearly 8 percent. Average annual flow in this small steep boulder and cobble channel is estimated to be 2 cubic feet per second. The watershed is 1.6 square miles in size.

The confluence of Roaring Branch with the Powell River is just below the Forest boundary on U.S. 23. From U.S. 23 upstream, the stream banks are entirely in NFS ownership. Also, the drainage -- except possibly for several small areas on the ridge top to the south -- is in NFS ownership. The underlying mineral estate is privately owned.

Roaring Branch drainage is one of the finest natural settings in Southwest Virginia. This first mile of stream falls rapidly through a gorge with steep rock-faces and large 300-plus year old hemlock with rhododendron understory. People walking along the streamside trail are offered a continuous series of visual delights, particularly in the steeper gorge section. The stream has numerous free-fall small cascades, cascades over tilted bedrock troughs, many small pools flowing through the boulder and cobble-strewn stream channel. The moss-covered steps erected by the Civilian Conservation Corp (CCC) and the 300-year old towering hemlocks create a nostalgic natural aesthetic in a tightly constricted landscape edged with steep side slopes and rock cliffs. The abundance of mosses, ferns,

RIVER EVALUATIONS AND CLASSIFICATIONS

ROARING BRANCH

and rhododendrons accompanied by the sounds of rushing water create a lush environment for the visitor to this distinctive landscape.

The main recreation use of the watershed is hiking the Stone Mountain Trail. The trail starts at the mouth of Roaring Branch and continues to climb to Butte Knob, a spectacular crag (at about 2900 feet) that boasts one of southwestern Virginia's best views.

Recreation use is fairly light, primarily because there is limited parking opportunity. With adequate parking and an increased interest in dispersed recreation opportunities in this area, the watershed has the potential of being a popular area.

Over most of the drainage, mineral rights reserved with water rights are held by Virginia Coal and Iron Company.

Historic sampling data shows an established population of brook and rainbow trout in Roaring Branch. In 1951, a fisheries survey described Roaring Branch as a Grade A stream with excellent spawning habitat for trout, and noted it had a brook trout population only. Roaring Branch, today, is not actively managed for recreation fishing. It has no known recommended fisheries use and no known threatened, endangered, or sensitive fish or aquatic species.

## Roaring Branch Eligibility Evaluations

Scenic Values: The streamcourse and steep-sided drainage created by Roaring Branch lay the foundation for a highly aesthetic compact environment. The flow characteristics of white-water and pools running through the boulder-strewn channel and lush vegetation below the towering 300-year old hemlocks combine to make this a distinctive scenic landscape within the region. A moderate-to-high number of small "special places" makes the entire drainage a "special place" in its own right.

A Class B rating, regionally significant, is assigned.

Recreation Values: The most important recreation use in the Roaring Branch drainage is day hiking on the Stone Mountain Trail. This is an extremely nice trail through old growth timber along the cascading stream. Use is light, but would be expected to increase with improvements to the trailhead. In addition to day hiking there is backpacking, fishing, hunting, nature study, and photography. It is one of the better stream-related recreation opportunities on the Forest, but common to the physiographic province.

A Class C rating, significant for the Forest, has been assigned.

Fisheries/Aquatic Values: Roaring Branch contains locally common fish and aquatic species; aquatic community habitats are not unique, rare, or critical.

A Class D rating, locally common, is assigned.

Wildlife Values: Roaring Branch lies within a RARE II area which has experienced no disturbance other than recreational use of the trail for at least 50 years. Scattered dense stands of large hemlock are present along the streambanks; rock outcrops are also present. Small sawtimber-sized mixed hardwoods exist along its length. A rating of Class C is recommended for this stream due to its undisturbed state and mature (probably considered old growth) pockets of hemlock. These two qualities in themselves are locally significant values, however, the habitat types along this stream are common throughout the Forest.

A Class C rating, locally significant, is assigned.

Heritage/Cultural Resource Values: No heritage/cultural resource surveys have been done on Roaring Branch by JNF archaeologists. The potential, however, is always high for location of prehistoric sites up level areas along a stream and particularly at the stream source where there are springs. Also, the potential is high for rock shelters in steep areas along sandstone outcrops where stream erosion is evident.

A Class C rating, locally significant, is assigned.

Botanical/Ecological Values: There are no known rare botanical or ecological values.

A Class D rating, locally common, is assigned.

Geological Values: Roaring Branch is an excellent example of a "structural landform" developed by erosion and controlled by the structure of the underlying bedrock -- a rare phenomena in the physiographic province.

A Class B rating, regionally significant, is assigned.

### Roaring Branch Eligibility and Classification

Roaring Branch is eligible for designation under the National Wild and Scenic Rivers Act. Scenic and geological resources are rated outstandingly remarkable, regionally significant. It is also free-flowing.

A preliminary classification for the 3 miles, according to FSH 1909, Chapter 8, is for a wild river. This determination is based on the lack of any shoreline development and accessibility by foot trail only.

## RUSSELL FORK - Clinch Ranger District

The river segment being evaluated for eligibility is approximately 8.7 miles long. It starts at the railroad bridge crossing above Elkhorn City, goes upstream to the confluence of White Branch with Russell Fork and, also goes upstream on the Pound River for approximately 1 mile to the gauging station below John W. Flannagan Reservoir. This segment is in both Dickenson Co., Virginia, and Pike Co., Kentucky.

Many of the unique qualities of Russell Fork are recognized. It is the only stream in or adjacent to the Jefferson National Forest that is on the U.S. Park Service 1982 Nationwide Rivers Inventory of significant free-flowing rivers. This inventory listed both its recreational and geological values as outstanding. The state of Virginia studied the river for designation as a State Scenic River and prepared a draft report. Presently, there is interest in increasing the number of water releases. The Corp of Engineers is doing a study, An Operational Change to Provide Recreational White Water, for the John W. Flanagan Reservoir. Several books and reports detail the outstanding value of this segment from a whitewater-enthusiast point-of-view.

Russell Fork is in the Appalachian Plateaus physiographic province. The Russell Fork river has eroded deeply into the Plateau. As a result, this segment of the Russell Fork river now flows across the bottom of a canyon which is 800 feet deep at the Breaks Interstate Park.

The Russell Fork segment flows through an important geologic transition zone between Pine Mountain and the surrounding plateau. In this plateau, the Paleozoic sedimentary bedrock layers are generally horizontal and form a dissected plateau that extends for

RIVER EVALUATIONS AND CLASSIFICATIONS

thousands of square miles. In contrast, at Pine Mountain the bedrock layers are faulted and bent upward. As a result, Pine Mountain juts up from the plateau as a distinctive, monoclinal ridge extending more than 100 miles across Tennessee, Kentucky, and Virginia.

RUSSELL FORK

The Russell Fork segment marks the northeast end of the 100-plus mile long Pine Mountain. It is in the transition zone between the inclined bedrock layers of Pine Mountain and the horizontal bedrock layers of the Plateau.

Russell Fork is within the Big Sandy drainage basin and a tributary to the Ohio River. The watershed area above the reach under consideration is 526 square miles. The average annual flow in the river in this reach is estimated to be 630 cubic feet per second. To protect its outstanding values, the Kentucky State Nature Preserves Commission recommended designation of the Kentucky portion as an "Outstanding Resource Water." This recommendation was never acted upon.

Ownership of the river banks is divided between the NFS, the Breaks Interstate Park, and private ownership. Mileages are approximate. Ownership of the east/south bank, left looking upstream, is 6.5 miles of Breaks Interstate Park, 0 miles of NFS, and 2.2 miles of privately owned. Ownership of the west/north bank, right looking upstream, is 3.1 miles of Breaks Interstate Park, 4.4 miles of NFS, and 1 mile of privately owned. The mile of the north bank of the Pound River is NFS ownership. The south bank is private.

One of the most important uses of Russell Fork is recreation. Russell Fork cuts a 1600 foot deep gorge through the Pine Mountain., forming what is called the "Great Breaks of the Pine Ridge." This gorge offers giant vertical walls and furious whitewater as it bisects the Kentucky-Virginia line. It and the canyon through which it courses are the focal point of Breaks Interstate Park -- a 4200-acre park situated on the Russell Fork at the Kentucky-Virginia state line with a lodge, restaurant, and variety of recreation activities. Many residents and visitors are content to observe Russell Fork from the numerous park overlooks along the rim of the gorge. Others hike the trails in the gorge and along the river.

Viewers at the park overlooks are offered spectacular views of the gorge and river far below. Tremendous rock cliffs drop hundreds of vertical feet to a forested floor of continuous tree canopy broken only by the river and the railroad line which runs along it. Some of the most memorable views are those of The Chimney and The Towers which appear as tall spires soaring up from the bottom of the gorge. The canopy is a mixture of evergreens and hardwoods that displays quite a color-show in the fall. People rafting, boating, or using the lower area in other ways experience outstanding views of cliff lines and rock spires, along with whitewater and quiet pools among large boulders and cascading rapids. Some of the bottom lands are dotted with large diameter hardwoods and an extensive boulder field on NFS land. The railroad viewed from above provides additional visual/cultural interest as it winds through both Towers and Skegg tunnels. It detracts from the remote experience when rafting the river but is not highly detracting visually during leaf out months. It is positioned perhaps 25 to 35 vertical feet above the river surface and often has tree-screening on the slope between it and the river.

An increasingly important recreation activity is whitewater rafting. Russell Fork is known for its deep gorge and nearly 2 miles of intense and dangerous whitewater. Russell Fork has a national reputation for ferocity. It has a difficulty rating of IV-V++ with rapids and falls with names such as Triple Drop, El Horrendo, Fling Falls, and Climax (a class V++ falls at the end of the gorge). Most people run the Breaks gorge during October weekend water releases scheduled by the Corps of Engineers during the annual fall drawdown of Flannagan Reservoir.

Russell Fork provides good habitat for recreational trout fishing. It is stocked with trout and is heavily fished above the Breaks Interstate Park. Angling pressure, however, is light within the gorge due to the rugged terrain and absence of access.

Fish species that are popular include smallmouth bass, rock bass, stocked brown and rainbow trout. The stocked trout have been reproducing and have established a limited wild trout fishery. It is listed as a Class IV Wild Trout Stream. This Class IV stream contains an adequately reproducing wild trout population but has severely reduced summer-flow characteristics.

The gorge provides an incredibly unique canyon habitat unlike anywhere else in the physiographic province. The Breaks Interstate Park touts this as the largest canyon east of the Mississippi. Large cliffs and vertical rock outcrops provide potential nesting habitat for the peregrine falcon (a federally-listed endangered species) and the golden eagle. Forests in the canyon are protected from harvest and road disturbance by the steep topography and park status, thus creating a large area of undisturbed maturing forest. This adds the component of connectivity-corridor to the area. Areas such as this are uncommon in a region where strip mining and timber harvesting are prevalent on the surrounding private lands.

This area has high potential for the presence of rockshelters used by Native Americans in prehistory. There are numerous rockshelters in deeply eroded sandstone drainages elsewhere on the Clinch Ranger District. Floodplains and terraces along Russell Fork also have high potential for prehistoric sites and some potential for historic sites.

No heritage/cultural resource surveys have been done on federal/public lands in the vicinity of Russell Fork and there is no record of sites along this part of the Russell Fork. The area does, however, have a high potential for a trading route from the Ridge and Valley physiographic province of Virginia deep into Kentucky to the northwest.

## Russell Fork Eligibility Evaluations

Scenic Values: The Russell Fork exhibits outstanding scenic values both from high positions along the rim of the gorge as well as from the river itself. The high vertical cliffs, towering rock spires, quantity of water, variety of flow characteristics, associated vegetation, numerous "special places," and its large scale, make the area distinctive regionally and nationally.

A Class A rating, nationally significant, is assigned.

Recreational Values: This river and canyon are the reason the Breaks Inter-state Park exists. One of the most important recreation activities is viewing the scenery in the gorge. Other significant recreation activities include hiking, fishing, and whitewater rafting. These recreation activities and the Park facilities draw visitors from well outside the Forest and region during water releases in October.

A Class B rating, regionally significant, is assigned.

Fisheries/Aquatic Values: Russell Fork is a high quality fishery with a significant Forest aquatic resource.

A Class C rating, locally significant, is assigned.

Wildlife Values: The gorge area contains potential nesting habitat for a federally listed endangered species, the peregrine falcon, and habitat diversity uncommon to the region

RIVER EVALUATIONS AND CLASSIFICATIONS

RUSSELL FORK

JAMES RIVER

(cliffs and mature forests).

A Class A rating, nationally significant, is assigned.

Heritage/Cultural Values: The waterway has a high potential for rockshelters used by Native Americans. It also has some potential for historic sites and high potential for a trading route from the Ridge and Valley physiographic province of Virginia deep into Kentucky to the northwest. There is the potential for outstandingly remarkable values with regional significance.

A Class B rating, regionally significant, is assigned.

Botanical/Ecological Values: This segment of river contains Spiraea virginiana, a plant that has federal status, listed threatened, and state status, listed endangered.

A Class A rating, nationally significant, is assigned.

Geologic Values: This segment of Russell Fork, flowing through the canyon that is deeply eroded into the plateau, contains geological features that are rare and unusual in the physiographic province.

A Class B rating, regionally significant, is assigned.

### Russell Fork Eligibility and Classification

Russell Fork is eligible for designation under the National Wild and Scenic Rivers Act. Scenic, wildlife, and botanical/ecological values are rated outstandingly remarkable, nationally significant. Recreational, heritage/cultural, and geological values are rated regionally significant. It is a free-flowing stream.

The classification for the 9.7 miles, according to FSH 1909, Chapter 8, is recreational river. This determination is based on the paralleling State Route 612 and the road bridge at Bartlick; the paralleling railroad over most of the length and the railroad bridge downstream from Bartlick; the homes and structures along part of the segment; and the access road at Garden Hole and Potters Flats. There is substantial evidence of human activity. Most of the river area is readily accessible by roads and the paralleling railroad.

## JAMES RIVER - Glenwood Ranger District

The river segment being evaluated is from pool level behind the Snowden Dam upstream to about 1 mile southeast of Buchanan where the last JNF lands join the south side of the river, a distance of approximately 23 miles. The segment runs through Botetourt and Rockbridge counties and is on the border between Amherst and Bedford counties, immediately above the Snowden Dam backwater.

This river segment flows along the border of two physiographic provinces: the Blue Ridge and the Ridge and Valley. The Blue Ridge rises from the south banks of the James River; the Ridge and Valley extends from the north banks of the James River. Because of this border location, the river segment provides a good opportunity to interpret the geologic processes that are shaping the two major landscapes of western Virginia.

At Glasgow, the James River turns south through a water gap in the Blue Ridge. The James River is one of the few rivers that flows southeast across the northeast-trending grain of the Ridge and Valley and Blue Ridge physiographic provinces.

Between Glasgow and the downstream end of this segment, on the Blue Ridge slopes south of the James River, there are rockslides triggered by the June 1995 rainstorms. This segment of the river provides an opportunity to see a fresh example of the geologic processes that are carving the modern landscape.

The reach under consideration has a large channel more than 400 feet wide and a very low gradient of less than one-half percent. The tributary watershed area is more than 2000 square miles and the average annual flow is approximately 2500 cubic feet per second. The river is free-flowing but does have remains of old dams and locks that once were part of the James River and Kanawha Canal and the remains of the Balcony Falls Dam below Glasgow.

NFS ownership of land along the river (much of this is actually railroad property on the river for the tracts run adjacent to the river) is 10 miles of the south side. All the north side downstream to Glasgow is private. Below Glasgow there is about 1 mile of NFS ownership on the north side. The north side of the river borders the George Washington National Forest.

From Buchanan to the southern end of the river segment being evaluated, the James is paralleled and crossed by railroads and highways. Much of the private land is in pasture and row crops with intermingled woods. NFS ownership is mostly forested. On the west side of the river, downstream from Glasgow, is the James River Face Wilderness offering spectacular scenery.

This segment of the James River has high scenic value, particularly in the area that parallels the James River Face Wilderness. The section from the State Highway 759 bridge-crossing down to the Snowden Dam has a variety of flow characteristics that includes serene quiet-moving segments and whitewater rapids. In addition, people on this section of the river are treated to views of towering rock bluffs and a typical but attractive variety of vegetation. The pastoral farmlands with the forested mountain backdrop complement each other as positive aesthetic amenities. Longer views into forested drainages are offered to river-users at a number of the river bends. The setting is also highlighted by views of historic remnants of the old Kanawha Canal, an addition to the visual diversity of the area.

Above Glasgow, there are few rapids, all Class 2 or less. The largest rapid in the section below Glasgow where the river runs through the watergap in the Blue Ridge is at Balcony Falls, a Class 3 rapid. Below Balcony Falls, there are several Class 2 rapids with several small riffles following before reaching the backwater of Snowden Dam, the end of the evaluation segment.

The James River, through this segment, receives moderate use for paddling and fishing. A canoe livery has been operating for approximately 20 years, offering trips on portions of this segment.

One of the biggest needs has been public access. The Glenwood Ranger District has been working with the state of Virginia to provide additional access and better camping for river users. Several key tracts of land have been acquired by the NFS on the east side of the river. These NFS tracts offer excellent potential river access and camping opportunities.

In addition to being known for floating and canoeing, this segment of the James is also important for its fisheries. The James River provides some of the better smallmouth bass fisheries in Virginia. Other common coolwater and warmwater game and non-game fish can also be found in the river, including bluegill, other common sunfishes, various species of catfish, pickerel, and largemouth bass.

RIVER EVALUATIONS AND CLASSIFICATIONS

JAMES RIVER

The James River has a large number of historic and prehistoric sites along its banks. These include large Native American villages of the Woodland Culture Period, Archaic Culture Period sites, historic locks and dams, industrial complexes and furnaces. There are over 50 known sites in all and certainly more to be found. Pig-iron from iron furnaces in the area was shipped through the locks and downstream to Richmond to make cannons during the Civil War. Sluice navigation began in 1816 to Balcony Falls and in 1827 to Buchanan. The Kanawha Canal and James River were incorporated in 1831, making navigation available to Balcony Falls in 1850 and to Buchanan in 1851. The canal continued until put out of business by the railroad soon after 1880. In 1876, iron and whiskey were still chief items of export. This formidable historic activity would leave considerable archaeological site potential.

The James River in its entirety is under study by a large, diverse group spearheaded by the Preservation Alliance of Virginia. The focus on heritage, natural, recreational resources and the level of recognition (federal and/or state) are being considered.

## James River Eligibility Evaluations

Scenic Values: This is an attractive section of river with a variety of flow characteristics, distinctive combinations of water, exposed river rocks, clifflines, and a nice but common variety of vegetation. The adjoining combination of pastoral farmlands and forested mountain backdrop offer a serene aesthetic experience that is contrasted by the exciting, visually diverse whitewater rapids section between Glasgow and the Snowden Dam. The quantity of water, its clarity, and the scale of the river add to its distinctive quality within the region. It exhibits a moderate-to-high number of "special places" punctuated by nostalgic historic remnants of the old Kanawha Canal.

A Class B rating, regionally significant, is assigned.

Recreation Values: River-based recreation of the James is one of the more outstanding river-related recreation values within the physiographic province. The water-based recreation in the area has the most possibilities for improvement. The NFS has acquired several key tracts bordering the river with potential for access and river-user campsites. Overall, the James River recreation values are regionally significant, drawing visitors from well outside the region, and the potential to become more important.

A Class B, regionally significant, is assigned.

Fisheries/Aquatic Values: This segment of the James River has a high quality cool water fisheries containing some of the better smallmouth fishing in Virginia. In addition to smallmouth bass, other cool and warm water fish are common. It is a significant Forest resource.

A Class C rating, locally significant, is assigned.

Wildlife Values: This segment is mostly bordered by private lands, with public access to NFS streamside ownership being fairly limited except at the Locher Tract. There are currently five known sites on private land and three on NFS land that contain plants that are considered "sensitive." At present, there are no known aquatic or terrestrial threatened or endangered species documented from this section of the stream. Three of the NFS tracts that border the river have open pasture fields and are managed under the District's grazing program

A Class D, locally common, is assigned.

Heritage/Cultural Resource Values: There are numerous historic and prehistoric sites along the James. These include large Native American villages of the Woodland Culture Period, Archaic Culture Period sites, historic locks and dams, industrial complexes and furnaces -- over 50 sites in all. There are certainly more to be found.

A Class B, regionally significant, is assigned.

Botanical/Ecological Values: This segment of river contains a globally significant riparian bedrock community (mesotrophic scrub community). This community is dominated by prairie-like vegetation that occurs due to river scour reducing growth of woody species and weeds.

A Class B rating, regionally significant, is assigned.

Geologic Values: The James River is a rare example of a river cutting through the Blue Ridge and flowing southeast across the northeast-trending grain of the Ridge and Valley and Blue Ridge physiographic provinces.

A Class B rating, regionally significant, is assigned.

### James River Eligibility and Classifications

The James River is eligible for designation under the National Wild and Scenic Rivers Act. Scenic, recreational, heritage/cultural, botanical/ecological, and geological values are rated outstandingly remarkable, regionally significant. It is also free-flowing.

The preliminary classification for the 23 miles according to FSH 1909, Chapter 8, is for a recreational river. This determination is based on the paralleling railroads, paralleling roads and access roads, a full range of agricultural uses on private lands, and the existence of several small communities and the town of Glasgow.

## NORTH CREEK - Glenwood Ranger District

The river segment being evaluated is an approximately 7-mile portion of North Creek, including a main tributary from the confluence of North Creek with Jennings Creek upstream to the top of Apple Orchard Falls. It is in Botetourt Co., Virginia.

This portion of North Creek is in the Blue Ridge physiographic province. The Creek affords the opportunity to view the hydro-geologic processes and resulting landforms in large mountain streams on the west side of the Blue Ridge.

North Creek is a tributary to the James River. The reach under consideration has a watershed area of 11.8 square miles. Average annual streamflow is 15 cubic feet per second. The boulder and cobble channel has an average gradient of 4.5 percent. The stream maintains at least a fair summer flow. North Creek has been designated an "Exceptional Surface Water" under Virginia's antidegradation policy. Designation gives streams permanent protection to preserve their still clean waters. Most of the drainage is forested.

The shoreline of North Creek is 100 percent NFS. About three-fourths of the segment can be accessed from FS 59, which runs parallel. FS 59 ends at the parking lot at the confluence of Cornelius Creek with North Creek. There is also access from Parkers Gap by FS 3034 to a point approximately one-half mile below Apple Orchard Falls. The North Creek Watershed is almost entirely in NFS ownership. Only the heads of several order-one drainages in the watershed are privately owned.

RIVER EVALUATIONS AND CLASSIFICATIONS

NORTH CREEK

North Creek is an attractive stream with a variety of flow characteristics. There is a moderate-to-high number of "special places" located along the channel. The most notable "special place" and scenic portion is Apple Orchard Falls. The Falls area has a pleasant variety of towering evergreen and hardwood overstory trees with massive trunks above a forest floor of evergreen and deciduous flowering shrubs, ferns, and wildflowers. The area immediately below the Falls is strewn with large boulders which create interesting spaces and micro "special places." A substantial number of other "special place" areas along the course of the stream are often associated with small whitewater cascades, pools, rock outcrops, or boulder clusters and attractive vegetation.

Recreation use in the North Creek Drainage is high. The area is located just off Interstate 81 and within 1-4 hours of large population centers. North Creek Campground has had recent improvements and a log cabin has been moved to the campground and partially restored. Recreation use in the drainage consists of camping, hiking, backpacking, fishing, hunting, and viewing scenery and nature. Because of the heavy recreation use in the drainage, there is a special regulation prohibiting camping within 300 feet of the stream.

Many of the recreation opportunities in the drainage are associated with trails. From the end of FS 59 to Apple Orchard Falls, North Creek is closely paralleled and crossed several times by the Apple Orchard National Recreation Trail. Improvements have been made to this trail during the last few years, and several additional bridges are planned. With the improvements and better visitor information, this trail has the potential to become one of the most heavily used trails on the Forest. The Cornelius Creek Trail has been designated an NRT and, with the Apple Orchard Falls Trail, makes a 6-mile loop. The Appalachian Trail traverses the upper portion of the drainage.

The lower portion of North Creek is a stocked trout stream that is heavily fished. The upper portion also contains a good wild trout fishery. The stream and its tributaries upstream from the first bridge above North Creek Campground are designated for special fishing regulations. These regulations permit fishing with single hook artificial lures only; require that trout less than 9 inches be immediately returned to the water unharmed; and, state that no bait may be in possession while fishing these waters. This stream section above the campground contains wild trout -- mostly rainbow trout that reproduce naturally, although the native brook trout are present in the headwaters tributaries. The lower portion is put-and-take trout water. North Creek contains a coldwater fishery and is listed as a Class II wild trout stream by the Virginia Department of Game and Inland Fisheries. It contains rainbow trout, brook trout, blacknose dace, fantail darter, and torrent sucker.

North Creek has 15 inventoried historic and prehistoric sites close by and twenty others within 2000 feet of its banks. There is high potential for numerous other sites along level areas, terraces, and ridges above this stream. Lithic resources utilized by Native Americans for over 9000 years are available in Arnold's Valley a short distance away, making this area attractive for its natural resources.

## North Creek Eligibility Evaluation

Scenic Values: The North Creek drainage offers a distinctive variety of water features, flow characteristics, vegetation textures and colors, cliffs, boulders, and other rockforms and is highlighted by Apple Orchard Falls. A substantial number of "special places" exists along this stream segment. The combination makes the area and stream distinctive scenically within the region.

A Class B rating, regionally distinctive, is assigned.

Recreation Values: The North Creek drainage is an important recreation resource on the Forest with many visitors coming significant distances to camp, hike, fish, and hunt. Few areas offer the variety of recreation opportunities as accessible to the public. With the completion of existing plans for the drainage, recreation opportunities will further increase in importance. The North Creek drainage is an outstanding recreation resource and draws visitors from well outside the region.

A Class B, regionally significant, is assigned.

Fisheries/Aquatic Values: North Creek has a high quality wild trout fishery and is a significant forest resource.

A Class C, locally significant, is assigned.

Wildlife Values: The portion of this stream from the confluence of Jennings Creek upstream to the confluence with Cornelius Creek is paralleled by an open road system. There is one known site along the lower section that contains two species of plants that are considered "sensitive." The headwaters of this stream are within the range of one terrestrial species that is considered "sensitive." There are no known aquatic species present.

A Class D, locally common, is assigned.

Heritage/Cultural Resource Values: North Creek has numerous inventoried historic and prehistoric sites and the potential for numerous other sites.

A Class C locally significant, is assigned.

Botanical/Ecological Values: There are no known rare botanical or ecological values.

A Class D rating, locally common, is assigned.

Geologic Values: The geomorphic features and formations are typical of those commonly found in the physiographic province.

A Class C rating, locally common, is assigned.

### North Creek Eligibility and Classifications

North Creek is eligible for designation under the National Wild and Scenic Rivers Act. Scenic and recreation resources are rated outstandingly remarkable, regionally significant. It is also free-flowing.

The preliminary classification for the 7 miles, according to FSH 1909, Chapter 8, is for a recreational river. This determination is based on the paralleling access road, FS 59, North Creek Campground and other developments along the stream and access road Forest Service 3034, about one-half mile below Apple Orchard Falls.

## WHITETOP LAUREL AND GREEN COVE CREEKS - Mount Rogers National Recreation Area

The segment of stream being studied for eligibility is approximately 10.5 miles of Whitetop Laurel Creek and approximately 1.5 miles of Green Cove Creek. The Whitetop Laurel portion is from the Forest boundary above Damascus, upstream on Whitetop

RIVER EVALUATIONS AND CLASSIFICATIONS

WHITETOP LAUREL AND GREEN COVE CREEKS

Laurel to the Forest boundary at the intersection of U.S. Highway 58 and State Route 859. The Green Cove portion is from the confluence with Whitetop Laurel to the Forest boundary near the confluence of Star Hill Branch. Green Cove Creek, included in the same study segment as Whitetop Laurel for the 1.5 miles being studied for eligibility, has similar ownership patterns, fisheries, wildlife populations, recreation use, etc. The segment is in Washington Co., Virginia.

These creeks are located in the Blue Ridge physiographic province and flow through a landscape that contains geologic deposits from a global Ice Age estimated to be 650 to 700 million years ago. The Konnarock Formation bedrock exposed along these creeks includes tillite, a sedimentary rock formed by lithification of a glacial deposit. The Konnarock Formation also includes an unusual sedimentary rock, rhythmite, believed deposited in a glacial lake. The rhythmite contains repetitive bands of alternating green siltstone/sandstone and maroon mudstone. In some bedrock exposures, the rhythmite contains "dropstones," ice-rafted pebbles which dropped, when the ice rafts melted, into the muddy floor of the glacial lake.

Whitetop Laurel Creek is a tributary to the South Fork of the Holston River which is tributary to the Tennessee River System. The 62-square mile watershed includes portions of Whitetop Mountain in Mount Rogers NRA, the highest point in Virginia. The reach under consideration has an average gradient of less than 2 percent, with an average annual streamflow of 77 cubic feet per second. Whitetop Laurel has been nominated as an "Exceptional Surface Water" under Virginia's antidegradation policy. Designated streams have permanent protection to preserve their still-clean waters.

NFS ownership is fairly good for the study segment. Only about 1.5 miles of the north bank is privately owned at Taylor's Valley and one private tract between the stream and U. S. Highway 58. About 2 miles of the south bank at Taylor's Valley is privately owned.

The Whitetop Laurel drainage contains an 800-acre Special Management Area, so designated in the Jefferson Forest Plan.

These are both beautiful streams, falling with a good gradient and numerous pools, riffles, and low cascades. Oaks, birch, red and sugar maple, hemlock, yellow poplar, and white pine make up much of the forest overstory. Thick rhododendron is common in much of the understory along the shore. Rock bluffs are present in some areas, punctuated with vegetation that protrudes from rock crevices and adds attractive spring and fall color. The high large timber-trestle bridges and old rust-covered steel-truss bridges are distinctive attractive amenities. The water pools, whitewater riffles, the clarity -- all are positive amenities that, when coupled with rockform, landform, and vegetation diversity, result in a moderate-to-high number of "special places."

US Highway 58 parallels the lower portion of Whitetop Laurel for several miles, however, much of the shoreline is free of roads. There is also public road access at Taylor's Valley, a small community along the stream; at Forest parking areas off U.S. Highway 58; and at Creek Junction. Private land with several stream-side cabins is immediately below the Forest parking area off U.S. Highway 58. Other improvements include the Virginia Creeper National Recreation Trail, with its bridges and trestles. The support structures for the bridges are highly visible.

Several large springs at Taylor's Valley feed a waterline to Damascus. The line is in the stream below Taylor's Valley and is partially visible.

Much of the recreation use is centered around the Virginia Creeper Trail and fishing. The Virginia Creeper Trail, a converted railroad bed, runs the length of this stream segment. The Virginia Creeper is fast becoming one of the premier mountain biking trails in the

United States and has been featured in national magazines. In addition to mountain biking, hiking and horseback riding are popular on the Virginia Creeper Trail. The Appalachian National Scenic Trail also closely parallels the Virginia Creeper Trail below Creek Junction. In fact, 1 mile of the Appalachian Trail coincides with the Virginia Creeper Trail. There is whitewater-use on Whitetop Laurel after heavy rains or snowmelt in the spring. Recreation use is estimated to be 50,000 recreation-visitor-days each year.

Both Whitetop Laurel and Green Cove Creeks are excellent aquatic resources. The study segment is a put-and-take and wild trout fishery. The segment also receives annual stockings of brown trout as part of the put-and-grow program. The Virginia Department of Game and Inland Fisheries lists the upstream segment of Whitetop Laurel as a Class I stream. A Class I stream has outstanding natural beauty with wilderness -- or at least remote characteristics, an abundance of large deep pools, and excellent fish cover. The stream has a good population of wild trout, or the potential for such, and is considered an exceptional wild trout stream. Whitetop Laurel has a state fish rating of "A," the highest ranking category. Rainbow trout and brook trout are found in the headwaters, and brown trout occur here as well as other types of stream fish. Green Cove is listed as a Class II stream. A Class II steam contains a good wild trout population or the potential for one; maintains adequate water quality and temperature; maintains adequate summer flow; and has adjacent land that is not extensively developed. Green Cove contains a good wild trout population and has a state fish rating of "A." Rainbow trout occur here, as well as other types of stream fish.

Special trout regulations apply to both streams -- Whitetop Laurel from the first railroad trestle above Taylor's Valley to the mouth of Green Cove Creek at Creek Junction; the lower mile of Green Cove Creek from its mouth to its intersection with State Route 859. Regulations permit fishing with single- hook artificial lures only and set the minimum size limit in this section at 12 inches.

Additional aquatic/fisheries resources of significance in both Whitetop Laurel and Green Cove Creeks are the green fin darter (Etheostoma clorobranchium), sharphead darter (Etheostoma acuticeps), fatlips minnow (Phenacobius crassilabrum), and the hellbender (Cryptobranchus alleganiensis alleganiensis). The green fin darter is a state-listed threatened species. The sharphead darter is a state-listed endangered species, the fatlips minnow is a species of special concern, and the hellbender is a candidate for federal listing.

No archaeological sites are listed around these streams. Several prehistoric sites 1.5 miles north and 2.5 miles west of Damascus on the South Fork of the Holston River are registered. There are many areas along these streams with level flood plains where Native American villages might exist. Also, very steep areas along the streams may have rockshelters which provided living areas and transient travel quarters for Native Americans. Woodland and Archaic cultural periods sites might be expected along these streams.

## Whitetop Laurel and Green Cove Creeks Eligibility Evaluations

Scenic Values: This stream segment is very attractive and is surrounded by a natural-appearing forested setting. The clear water has a variety of flow characteristics, including pools and riffles running over cobbles and some moderate-to-large size boulders. The combination of the natural elements of landform, rockform, waterform, and vegetation are enhanced by the presence of cultural features such as the high wood trestles and the old steel-truss bridges. All these amenities and the presence of a moderate-to-high number of "special places" make the streams distinctive in the physiographic province.

RIVER EVALUATIONS AND CLASSIFICATIONS

A Class B rating, regionally significant, is assigned.

Recreation Values: This stream segment is an important recreation opportunity. It is one of the most important fishing areas on the Forest and its trail opportunities are unique. Other recreation uses include camping, hunting, whitewater recreation, photography, historic interpretation, and nature viewing. A significant number of visitors travel to the streams from other parts of Virginia and from other states. The recreation values are significant within the region, but relatively common at a national level.

WHITETOP LAUREL AND GREEN COVE CREEKS

A Class B rating, regionally significant, is assigned.

Fisheries/Aquatic Values: This stream segment has a high quality fisheries and aquatic community. There is a diversity of habitat that is important for several rare species. The greenfin darter (Etheostoma cholorbranchium) is an extremely localized fish in Whitetop Laurel. It is extremely rare in the state of Virginia and has a global status of rare-to-uncommon.

A Class C rating, locally significant, is assigned to the fisheries/aquatic values.

Wildlife Values: The Whitetop Laurel Gorge contains an 800-acre "special area," so-designated in the Forest Plan. Although these steams provide habitat for wildlife species that are proposed for threatened and endangered species listing or sensitive species designation by the Forest Service, they do not possess exceptionally high quality habitat or habitat that has regionally outstanding values.

A Class C rating, locally significant, is assigned to the wildlife values.

Heritage/Cultural Values: There is a potential for sites with qualities that would be shared with the many significant areas of the region.

A Class C rating, locally significant, is assigned.

Botanical/Ecological Values: There are no known rare botanical or ecological values.

A Class D rating, locally common, is assigned.

Geologic Values: This segment contains examples of geomorphic features and formation that are unusual and significant in the physiographic province.

A Class B rating, regionally significant, is assigned.

## Whitetop Laurel and Green Cove Creeks Eligibility and Classification

This segment of Whitetop Laurel and Green Cove Creeks is eligible for designation under the National Wild and Scenic Rivers Act. Scenic, recreation, and geological resources are rated regionally significant. These streams are also free-flowing.

The classification for the 10.5 miles, according to FSH 1909, Chapter 8, is recreational river. This determination is based on the extensive shoreline development and substantial evidence of human activity. This includes the community of Taylor's Valley, U.S. Highway 58, and the impact of the old railroad grade and the bridges and trestles. Much of the segment is also easily accessible by roads.

## BARBOURS CREEK - New Castle Ranger District

The river segment evaluated for eligibility is approximately 11.6 miles long -- 8 miles on the main stream and 3.6 miles on the South Prong. The segment starts at the Forest boundary above the confluence of Cove Branch and runs to the headwaters of both main forks. Most of the segment is in Craig Co., Virginia., however, approximately one-half mile of the South Prong is in Botetourt Co., Virginia.

Barbours Creek is in the Ridge and Valley physiographic province. In this province, the underlying bedrock layers have been deformed into nearly parallel folds which trend generally northeast. The rock formations and the bedrock structure shaped the landforms and controlled the development of mountains and valleys. For example, Barbours Creek and the neighboring Potts Mountain, Rich Patch Mountains, and Bald Mountain have a northeast trend across the landscape because the underlying bedrock structure has a northeast trend. Because of the persistent northeast trend of the mountains, the mountain slopes are divided into northwest aspects and southeast aspects.

Barbours Creek is tributary to Craig Creek, which is tributary to the James River. The watershed area is 18.2 square miles and is nestled between Bald Mountain and Potts Mountain. The reach under consideration has an average gradient of 2.4 percent. Average annual flow is estimated to be 22.6 cubic feet per second.

Ownership of the river banks is approximately 7.1 miles NFS on the north bank of the main fork and approximately 7.5 miles of NFS on the south bank. The South Prong is approximately 3.1 miles NFS on both sides.

Both forks of Barbours Creek are almost entirely accessible by paralleling roads. Paved State Route 617 goes up the main fork within a mile of the headwaters. Forest Service 180 goes up the South Prong.

The segment runs through U-shaped drainages with some moderately steep side slopes. The vegetation is generally continuous with a common mix of evergreen and deciduous overstory species. There is a fairly common mix of tree bole sizes but no apparent areas of distinctively large stems or unusual vegetation features. Waterform is typical and rockform is quite minimal.

The main recreation use of the stream is put-and-take fisheries. It is a popular trout stream. Adjacent to the stream is the Forest Service's rustic Pines Campground. One section of the campground is open to horse camping. Across from the campground, an accessible trail follows a short section of Barbours Creek. Barbours Creek has stream structures installed to improve fisheries habitat. Upstream from the campground, there is a woody-debris demonstration project where trees were felled into the stream and allowed to affect the stream naturally to see what effect they will have on trout habitat.

The main fork of Barbours Creek is primarily a put-and take and wild trout fishery. It does contain some wild trout -- brook trout -- in the main stream, but the Virginia Department of Game and Inland Fisheries lists it as a Class VI stream, not containing a significant number of trout or a significant population of warmwater gamefish. Adequate water quality and water temperature allows for a summer carryover of stocked trout. The present use of the South Fork of Barbours Creek is as a wild trout fishery and its recommended fisheries-use is the same. The South Fork is listed as a Class II trout stream by the Virginia Department of Game and Inland Fisheries. A Class II stream contains a good wild trout population or the potential for one. It has a fish rating of "A" which means the creek has a good wild trout population or the potential for such.

RIVER EVALUATIONS AND CLASSIFICATIONS

Wildlife populations and hunting opportunities are common in most of the surrounding NFS land.

BARBOURS CREEK

Only a few hundred feet have been surveyed for heritage/cultural resources. There are three Archaic Cultural Period Native American sites clustered about the creek near the confluence of Cove Branch and Barbours Creek (on the flood plain). No other sites are registered along these streams, however, any level areas may have Archaic or Woodland sites. Historic homesteads may also be found along the springs and branches entering the streams.

## Barbours Creek Eligibility Evaluations

Scenic Values: The stream segment is generally attractive with a typical variety of vegetation, rockform, and landform. Water characteristics are quite common to the Ridge and Valley physiographic province. A low-to-moderate number of "special places" occur along the stream channels.

A Class D rating, locally common, is assigned.

Recreation Values: Recreation opportunities along Barbours Creek consist of camping, fishing that includes accessible fishing opportunities, hunting, and hiking. Most use is light-to-moderate except after stream-stocking and at special fishing events at the Pines Accessible Trail. The recreation values are significant to the Forest, but common throughout the physiographic province.

A Class C rating, locally significant, is assigned.

Fisheries/Aquatic Values: The fish and aquatic resources represent a significant forest resource.

A Class C rating, locally significant, is assigned.

Wildlife Values: This stream is paralleled along much of its length by an open road system. In the vicinity of the Pines Campground, a constructed trail is accessible by disabled individuals. There are no known terrestrial, as well as no known aquatic or plant, threatened, endangered, sensitive, or proposed species present. The recommended rating for this stream is Class D, because the wildlife and wildlife habitats are not significant, rare, or critical and are considered common throughout the Forest.

A Class D rating, locally common, is assigned.

Heritage/Cultural Resource Values: There is the potential for sites with qualities that would be shared with the many significant areas of the region.

A Class C rating, locally significant, is assigned.

Botanical/Ecological Values: There are no known rare botanical or ecological values.

A Class D rating, locally common, is assigned.

Geologic Values: The geologic values found in the Barbours Creek drainage are common on the Forest.

A rating of Class D, locally common, is assigned to this segment.

### Barbours Creek Eligibility and Classification

Barbours Creek is not eligible for addition to the National Wild and Scenic Rivers System. There are no inventoried outstandingly remarkable resources.

## LAUREL CREEK - New River Valley Ranger District

The portion of Laurel Creek evaluated for eligibility is approximately 3.2 miles long from its confluence with Hunting Camp Creek upstream, closely paralleling State Route 615 until it leaves the Forest boundary above the confluence with Little Wolf Creek. The stream is in Bland Co., Virginia..

The field review shows that portions of the stream have been channelized where it runs along the edge of State Route 615. Since it does not meet the criteria for free-flowing, a detailed resource write-up was not included.

### Laurel Creek Eligibility and Classification

Laurel Creek is determined to be ineligible for designation under the National Wild and Scenic Rivers Act since it is not free-flowing.

## LITTLE WOLF CREEK - New River Valley Ranger District

The Little Wolf Creek drainage being evaluated is approximately 3.5 miles from its confluence with Laurel Creek to its headwaters. It is located in Bland Co., Virginia.

Little Wolf Creek is in the Ridge and Valley physiographic province. In this province, the underlying bedrock layers have been deformed into nearly parallel folds which trend generally northeast. Geologic uplift and erosion of this folded structure has shaped the modern landscape of northeast-trending ridges and valleys. Little Wolf Creek flows in one of these northeast-trending valleys.

Little Wolf Creek flows into Laurel Creek and then into Hunting Camp Creek, tributary to the New River. The 3.6-square mile watershed produces an average annual flow of 4.4 cubic feet per second. The reach under consideration has a channel of cobble and gravel, with some bedrock outcrops. Average gradient is 2.6 percent.

Stream banks on both sides for the length of the segment are in NFS ownership. Also, the entire drainage from ridge-to-ridge is in NFS ownership.

At the confluence of Little Wolf Creek and Laurel Creek, a rock bluff adds positive aesthetic interest to hikers entering the drainage. Waterflow is quite low, but it creates interest as it flows over exposed shelves of bedrock. The drainage near the confluence is restricted and steep-sided, which contrasts sharply with the more open U-shaped character in the upper reaches around the beaver ponds. More extensive views of the surrounding landforms are present in the upper reaches as one looks across the grassy meadows, over the meandering stream and beaver pond areas. The beaver pond areas add interest and a bit of distinctive diversity in vegetation types, pattern, and open space. A moderate number of "special places" exist along this stream course.

Five hundred acres of the lower portion of the drainage carries a Special Management Area designation in the Jefferson Management Plan. These special management areas possess unique or special values that require special recognition in management. One area of interest in the Little Wolf Creek Drainage is a relatively large area of Beaver

RIVER EVALUATIONS AND CLASSIFICATIONS

Meadows, about a mile up from Virginia 615. Below the beaver ponds, the stream is shallow with no particular pools or areas of interest. Through the beaver meadows, the stream meanders with much deeper water, undercut banks, and a distinctly different, more-grassy vegetation on the deposited sediment surrounding the stream.

LITTLE WOLF CREEK

The lower portion of Little Wolf Creek is to be listed in the new Virginia Wildlife Viewing Guide. In addition to the wildlife viewing and hunting in the area, the Appalachian National Scenic Trail runs up the drainage. A planned trail connecting the High Water Trail to the Appalachian Trail will make a loop trail opportunity.

Little Wolf Creek is known to contain a few brown trout but currently has no significant fisheries or recommended fisheries. It is listed as a Class VIII trout stream by the Virginia Department of Game and Inland Fisheries. It does not contain a significant number of trout or a significant population of warmwater gamefish.

## Little Wolf Creek Eligibility Evaluations

Scenic Values: Pockets of distinct diversity in vegetation pattern, openings and waterform created by the beaver ponds, and riffles over exposed bedrock give the stream local significance. Also, a moderate number of "special places" exist.

A Class C rating, locally significant, is assigned.

Recreation Values: Recreation opportunities consist primarily of hiking and viewing wildlife and nature. With the wildlife viewing designation, the stream is somewhat unique on the Forest, but that in itself does not make it significant at a regional level. The Appalachian National Scenic Trail parallels and crosses the stream numerous times, enhancing the recreation experience of the hikers. However, the stream environment does not draw significant numbers of hikers to the drainage. Recreation values are significant at a Forest level, but not regionally.

A Class C rating, locally significant, is assigned.

Fisheries/Aquatic Values: The fish and aquatic resources are common to the Forest, and the fish and aquatic community habit is not unique, rare, or critical.

A Class D rating, locally common, is assigned.

Wildlife Values: Little Wolf Creek contains a variety of wildlife habitats, which are common to most forested watersheds in Southwestern Virginia. There is a beaver dam complex within the stream that attracts numerous bird and wildlife species. Species normally associated with beaver dams and the associated wet areas include bobcats, muskrats, red-winged blackbirds, white-tailed deer, wood duck, black bear, and numerous amphibians and reptiles. The area is listed in the Virginia Wildlife Viewing Guide. In addition to non-consumptive uses of wildlife, good hunting is associated with the drainage. While the stream provides quality wildlife habitat, similar beaver complexes and wildlife habitats are common on the Forest. A Class C rating has been assigned.

A Class C rating, locally significant, is assigned.

Heritage/Cultural Resource Values: No known sites have been registered nor have there been heritage/cultural resource surveys along Little Wolf Creek. There is the potential for sites with qualities that would be shared with the many significant areas in the region.

A Class C rating, locally significant, is assigned.

Botanical/Ecological Values: There are no known rare botanical or ecological values.

A Class D rating, locally common, is assigned.

Geologic Values: The geomorphic features found in Little Wolf Creek are common throughout the Forest.

A Class D rating, locally common, is assigned.

## Little Wolf Creek Eligibility and Classification

Little Wolf Creek is not eligible for designation to the National Wild and Scenic Rivers System. There are no inventoried outstandingly remarkable resources.

Table D-2. River Evaluation and Classification

| | | Outstandingly Remarkable Values | | | | | | | Preliminary |
|---|---|---|---|---|---|---|---|---|---|
| River | Length | Scenic | Recrea-tional | Aquatic | Wildlife | Cultural | Botanic | Geologic | Classifica-tion |
| Little Stony Crk (NRV) | 3.2 | B | B | | | | | B | Rec |
| Stony Creek | 8.3 | | | A | | | | | Rec |
| Clinch River | 5.5 | | | | | B | A | B | Rec |
| Devil's Fork | 3.8 | | | | | | | | n/a |
| Guest River | 6.5 | B | B | | | B | A | B | Rec |
| Little Stony Crk (CRD) | 8.5 | B | | | B | | | B | Rec |
| Roaring Branch | 3.0 | B | | | | | | B | Wild |
| Russell Fork | 8.7 | A | B | | A | B | A | B | Rec |
| James River | 23.0 | B | B | | | B | B | B | Rec |
| North Creek | 7.0 | B | B | | | | | | Rec |
| Whitetop Laurel / Green Cove Crks | 12.0 | B | B | | | | | B | Rec |
| Barbours Creek | 11.6 | | | | | | | | n/a |
| Laurel Creek | 3.2 | | | | | | | | n/a |
| Little Wolf Creek | 3.5 | | | | | | | | n/a |

A = Nationally Significant

B = Regionally Significant

# TERRESTRIAL SPECIES VIABILITY

APPENDIX E

**TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE**

**KEYS TO CODES:**

| **Status Description:** | |
|---|---|
| F | Federally listed or proposed as Threatened or Endangered. |
| S | Regional Forester's Sensitive Species List. |
| O | Locally rare and other. |

| **F Rank Description:** | |
|---|---|
| F? | Present on the forest, but abundance information is insufficient to develop rank. |
| F0 | Not present, no known occurrences on the forest unit, and unit is outside the species range or habitat is not present. |
| F1 | Extremely rare on the forest unit, generally with 1-5 occurrences. |
| F2 | Very rare on the forest unit, generally with 6-20 occurrences. |
| F3 | Rare and uncommon on the forest unit, from 21-100 occurrences. |
| F4 | Widespread, abundant, and apparently secure on the forest unit. |
| F5 | Demonstrably secure on the forest unit. |
| FP | Possibly could occur on the forest unit, but documented occurrences not known. |
| FH | Of documented historical occurrence on the forest unit; may be rediscovered. |
| FX | Once occurred but has been extirpated from the forest unit; it is not likely to be rediscovered. |

| **Viability Risk:** | |
|---|---|
| 1 | Very High |
| 2 | High |
| 3 | Moderately-High |
| 4 | Moderate |
| 5 | Low |

TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE

| Scientific Name | Common Name | Status | FRank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Mammal** | | | | | | | | | | | |
| *Condylura cristata* | Star-nosed mole | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Condylura cristata* | Star-nosed mole | O | F3 | Early-Successional Riparian | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Condylura cristata* | Star-nosed mole | O | F3 | Late Successional Riparian | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Corynorhinus townsendii virginianus* | Virginia big-eared bat | F | F1 | Caves and Mines | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Glaucomys sabrinus coloratus* | Carolina northern flying squirrel | F | F1 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Glaucomys sabrinus coloratus* | Carolina northern flying squirrel | F | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Lontra canadensis* | River otter | O | F3 | Late Successional Riparian | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Lontra canadensis* | River otter | O | F3 | Water Quality | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Mustela nivalis* | Least weasel | O | F2 | Remoteness | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Mustela nivalis* | Least weasel | O | F2 | Mixed Landscapes | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Myotis grisescens* | Gray bat | F | F1 | Caves and Mines | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Myotis grisescens* | Gray bat | F | F1 | Late Successional Riparian | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Myotis leibii* | Eastern small-footed bat | S | F2 | Late Successional Riparian | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Myotis leibii* | Eastern small-footed bat | S | F2 | Caves and Mines | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Myotis leibii* | Eastern small-footed bat | S | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Myotis septentrionalis* | Northern long-eared bat | O | F3 | Snags | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Myotis septentrionalis* | Northern long-eared bat | O | F3 | Caves and Mines | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Myotis septentrionalis* | Northern long-eared bat | O | F3 | Den Trees | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Myotis sodalis* | Indiana bat | F | F1 | Caves and Mines | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Myotis sodalis* | Indiana bat | F | F1 | Snags | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Myotis sodalis* | Indiana bat | F | F1 | Den Trees | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Neotoma magister* | Allegheny woodrat | O | F3 | Rock Outcrops and Cliffs | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Sorex dispar* | Long-tailed shrew | O | F3 | Rock Outcrops and Cliffs | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Spilogale putorius* | Spotted skunk | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Spilogale putorius* | Spotted skunk | O | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Sylvilagus obscurus* | Appalachian cottontail | O | F3 | Early-Successional Forests | 4 | 4 | 5 | 3 | 4 | 3 | 4 |
| *Sylvilagus obscurus* | Appalachian cottontail | O | F3 | High Elevation Early Succession | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Sylvilagus obscurus* | Appalachian cottontail | O | F3 | Shrub Balds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| Scientific Name | Common Name | Status | FRank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Amphibian** | | | | | | | | | | | |
| *Aneides aeneus* | Green salamander | O | F2 | Mature Hemlock Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Aneides aeneus* | Green salamander | O | F2 | Caves and Mines | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Aneides aeneus* | Green salamander | O | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Aneides aeneus* | Green salamander | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Desmognathus marmoratus* | Shovelnose salamander | O | F1 | Water Quality | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Desmognathus marmoratus* | Shovelnose salamander | O | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Desmognathus marmoratus* | Shovelnose salamander | O | F1 | Late Successional Riparian | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Desmognathus wrighti* | Pigmy salamander | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Desmognathus wrighti* | Pigmy salamander | O | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Desmognathus wrighti* | Pigmy salamander | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Plethodon hubrichti* | Peaks of Otter salamander | S | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Plethodon hubrichti* | Peaks of Otter salamander | S | F2 | Downed Wood | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Plethodon wehrlei* | Wehrle's salamander | O | F3 | Downed Wood | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Plethodon wehrlei* | Wehrle's salamander | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Plethodon welleri* | Weller's salamander | S | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Plethodon welleri* | Weller's salamander | S | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Plethodon yonahlossee* | Yonahlossee salamander | O | F3 | Downed Wood | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Plethodon yonahlossee* | Yonahlossee salamander | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Pseudacris brachyphona* | Mountain chorus frog | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Pseudacris brachyphona* | Mountain chorus frog | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Pseudacris brachyphona* | Mountain chorus frog | O | F3 | Late Successional Riparian | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Pseudotriton montanus* | Eastern mud salamander | O | F3 | Late Successional Riparian | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Pseudotriton montanus* | Eastern mud salamander | O | F3 | Open Wetlands | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Pseudotriton montanus* | Eastern mud salamander | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Pseudotriton montanus* | Eastern mud salamander | O | F3 | Downed Wood | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

**TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE**

TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE

| Scientific Name | Common Name | Status | FRank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Bird** | | | | | | | | | | | |
| *Accipiter cooperii* | Cooper's hawk | O | F2 | Mixed Landscapes | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Accipiter striatus* | Sharp-shinned hawk | O | F3 | Mature Hemlock Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Accipiter striatus* | Sharp-shinned hawk | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Aegolius acadicus* | Northern saw-whet owl | O | F1 | Snags | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Aegolius acadicus* | Northern saw-whet owl | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Aegolius acadicus* | Northern saw-whet owl | O | F1 | Remoteness | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Caprimulgus carolinensis* | Chuck-wills-widow | O | F1 | Mature Yellow Pine Forests | 2 | 3 | 2 | 1 | 1 | 2 | 2 |
| *Caprimulgus carolinensis* | Chuck-wills-widow | O | F1 | Mixed Landscapes | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Caprimulgus vociferus* | Whip-poor-will | O | F3 | Mixed Landscapes | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Caprimulgus vociferus* | Whip-poor-will | O | F3 | Canopy Gaps | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Carpodacus purpureus* | Purple finch | O | F1 | Mixed Landscapes | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Carpodacus purpureus* | Purple finch | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Catharus guttatus* | Hermit thrush | O | F1 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Catharus guttatus* | Hermit thrush | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Catharus ustulatus* | Swainson's thrush | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Certhia americana* | Brown creeper | O | F2 | Snags | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Certhia americana* | Brown creeper | O | F2 | Spruce-Fir Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Coccyzus erythropthalmus* | Black-billed cuckoo | O | F2 | Canopy Gaps | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Coccyzus erythropthalmus* | Black-billed cuckoo | O | F2 | Mature Forest Interiors | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Colinus virginianus* | Northern bobwhite | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Colinus virginianus* | Northern bobwhite | O | F1 | Mature Yellow Pine Forests | 2 | 3 | 2 | 1 | 1 | 2 | 2 |
| *Contopus borealis* | Olive-sided flycatcher | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Dendroica cerulea* | Cerulean warbler | O | F3 | Mature Forest Interiors | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Dendroica cerulea* | Cerulean warbler | O | F3 | Late Successional Riparian | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Dendroica cerulea* | Cerulean warbler | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Dendroica cerulea* | Cerulean warbler | O | F3 | Canopy Gaps | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Dendroica discolor* | Prairie warbler | O | F3 | Early-Successional Forests | 4 | 4 | 5 | 3 | 4 | 3 | 4 |
| *Dendroica discolor* | Prairie warbler | O | F3 | Open Wetlands | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Dendroica dominica* | Yellow-throated warbler | O | F2 | Late Successional Riparian | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Dendroica fusca* | Blackburnian warbler | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| Scientific Name | Common Name | Status | FRank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Bird** | | | | | | | | | | | |
| *Dendroica magnolia* | Magnolia warbler | O | F2 | Spruce-Fir Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Empidonax alnorum* | Alder flycatcher | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Empidonax alnorum* | Alder flycatcher | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Empidonax flaviventris* | Yellow-bellied flycatcher | O | F1 | Canopy Gaps | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Empidonax flaviventris* | Yellow-bellied flycatcher | O | F1 | Late Successional Riparian | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Empidonax minimus* | Least flycatcher | O | F2 | Mixed Landscapes | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Empidonax minimus* | Least flycatcher | O | F2 | Mature Oak Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Empidonax traillii* | Willow flycatcher | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Empidonax traillii* | Willow flycatcher | O | F2 | Early-Successional Riparian | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Falco sparverius* | American kestrel | O | F3 | Woodlands-Savannas-Grasslands | 4 | 4 | 4 | 3 | 3 | 4 | 4 |
| *Falco sparverius* | American kestrel | O | F3 | Snags | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Icteria virens* | Yellow-breasted chat | O | F3 | Early-Successional Forests | 4 | 4 | 5 | 3 | 4 | 3 | 4 |
| *Icterus spurius* | Orchard oriole | O | F3 | Woodlands-Savannas-Grasslands | 4 | 4 | 4 | 3 | 3 | 4 | 4 |
| *Icterus spurius* | Orchard oriole | O | F3 | Mature Oak Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Icterus spurius* | Orchard oriole | O | F3 | Mixed Landscapes | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Lanius ludovicianus* | Loggerhead shrike | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Limnothlypis swainsonii* | Swainson's warbler | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Limnothlypis swainsonii* | Swainson's warbler | O | F2 | Canopy Gaps | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Limnothlypis swainsonii* | Swainson's warbler | O | F2 | Mature Forest Interiors | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Loxia curvirostra* | Red crossbill | O | F1 | Mature Hemlock Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Loxia curvirostra* | Red crossbill | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Parus atricapillus* | Black-capped chickadee | O | F3 | Spruce-Fir Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Parus atricapillus* | Black-capped chickadee | O | F3 | Mature High-Elevation Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Passerculus sandwichensis* | Savannah sparrow | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Pooecetes gramineus* | Vesper sparrow | O | F1 | Grassy Balds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Pooecetes gramineus* | Vesper sparrow | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |

TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE

TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE

| Scientific Name | Common Name | Status | FRank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Bird** | | | | | | | | | | | |
| *Regulus satrapa* | Golden-crowned kinglet | O | F2 | Spruce-Fir Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Regulus satrapa* | Golden-crowned kinglet | O | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Scolopax minor* | American woodcock | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Scolopax minor* | American woodcock | O | F2 | Early-Successional Riparian | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Sitta canadensis* | Red-breasted nuthatch | O | F2 | Spruce-Fir Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Sitta canadensis* | Red-breasted nuthatch | O | F2 | Mature Hemlock Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Sitta canadensis* | Red-breasted nuthatch | O | F2 | Snags | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Sphyrapicus varius appalachiensis* | Appalachian yellow-bellied sapsucker | O | F2 | Snags | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Sphyrapicus varius appalachiensis* | Appalachian yellow-bellied sapsucker | O | F2 | Mature Oak Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Sphyrapicus varius appalachiensis* | Appalachian yellow-bellied sapsucker | O | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Troglodytes troglodytes* | Winter wren | O | F1 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Troglodytes troglodytes* | Winter wren | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Vermivora chrysoptera* | Golden-winged warbler | O | F2 | Early-Successional Forests | 3 | 3 | 4 | 2 | 3 | 2 | 3 |
| *Vermivora chrysoptera* | Golden-winged warbler | O | F2 | High Elevation Early Succession | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Vermivora pinus* | Blue-winged warbler | O | F3 | Early-Successional Forests | 4 | 4 | 5 | 3 | 4 | 3 | 4 |
| *Vireo gilvus* | Warbling vireo | O | F3 | Canopy Gaps | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Vireo gilvus* | Warbling vireo | O | F3 | Late Successional Riparian | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Vireo griseus* | White-eyed vireo | O | F3 | Early-Successional Forests | 4 | 4 | 5 | 3 | 4 | 3 | 4 |
| *Wilsonia canadensis* | Canada warbler | O | F3 | Canopy Gaps | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Wilsonia canadensis* | Canada warbler | O | F3 | Mature High-Elevation Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Wilsonia canadensis* | Canada warbler | O | F3 | Spruce-Fir Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| Scientific Name | Common Name | Status | FRank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Invertebrate** | | | | | | | | | | | |
| *Cicindela patruela* | Barrens tiger beetle | S | F1 | Glades and Barrens | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Cleidogona fidelitor* | Faithful millipede | O | F1 | Mature Mesic Hardwood Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Cleidogona fidelitor* | Faithful millipede | O | F1 | Downed Wood | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Cleidogona hoffmani* | Hoffman's cleidogonid millipede | S | F2 | Downed Wood | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Cleidogona hoffmani* | Hoffman's cleidogonid millipede | S | F2 | Caves and Mines | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Cleidogona lachesis* | Millipede | S | F1 | Spruce-Fir Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Cleidogona lachesis* | Millipede | S | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Conotyla aeto* | Millipede | O | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Conotyla aeto* | Millipede | O | F1 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Conotyla celeno* | Celeno millipede | O | F1 | Downed Wood | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Conotyla celeno* | Celeno millipede | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Dixioria coronata* | Millipede | S | F2 | Spruce-Fir Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Dixioria fowleri* | Millipede | S | F2 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Dixioria fowleri* | Millipede | S | F2 | Downed Wood | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Erora laeta* | Early hairstreak | O | F2 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Escaryus cryptorobius* | Montane centipede | S | F2 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Escaryus cryptorobius* | Montane centipede | S | F2 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Escaryus orestes* | Whitetop Mountain centipede | S | F2 | Mature High-Elevation Mesic Hardwood Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Escaryus orestes* | Whitetop Mountain centipede | S | F2 | Downed Wood | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Litocampa sp. 4* | Dipluran | O | F1 | Caves and Mines | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Mesomphix rugeli* | Wrinkled button | O | F3 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Polygonia progne* | Gray comma | O | F3 | Mixed Landscapes | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Pseudanophthalmus cordicollis* | Little Kennedy cave beetle | O | F1 | Caves and Mines | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Pseudotremia alecto* | Millipede | S | F1 | Downed Wood | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Pseudotremia alecto* | Millipede | S | F1 | Mature Mesic Hardwood Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Pseudotremia alecto* | Millipede | S | F1 | Caves and Mines | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

**TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE**

TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE

| Scientific Name | Common Name | Status | FRank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Invertebrate** | | | | | | | | | | | |
| *Cicindela patruela* | Barrens tiger beetle | S | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Cleidogona fidelitor* | Faithful millipede | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Cleidogona fidelitor* | Faithful millipede | O | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Cleidogona hoffmani* | Hoffman's cleidogonid millipede | S | F2 | Downed Wood | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Cleidogona hoffmani* | Hoffman's cleidogonid millipede | S | F2 | Caves and Mines | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Cleidogona lachesis* | Millipede | S | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Cleidogona lachesis* | Millipede | S | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Conotyla aeto* | Millipede | O | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Conotyla aeto* | Millipede | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Conotyla celeno* | Celeno millipede | O | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Conotyla celeno* | Celeno millipede | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Dixioria coronata* | Millipede | S | F2 | Spruce-Fir Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Dixioria fowleri* | Millipede | S | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Dixioria fowleri* | Millipede | S | F2 | Downed Wood | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Erora laeta* | Early hairstreak | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Escaryus cryptorobius* | Montane centipede | S | F2 | Downed Wood | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Escaryus cryptorobius* | Montane centipede | S | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Escaryus orestes* | Whitetop Mountain centipede | S | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Escaryus orestes* | Whitetop Mountain centipede | S | F2 | Downed Wood | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Litocampa sp. 4* | Dipluran | O | F1 | Caves and Mines | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Mesomphix rugeli* | Wrinkled button | O | F3 | Mature High-Elevation Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Polygonia progne* | Gray comma | O | F3 | Mixed Landscapes | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Pseudanophthalmus cordicollis* | Little Kennedy cave beetle | O | F1 | Caves and Mines | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Pseudotremia alecto* | Millipede | S | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Pseudotremia alecto* | Millipede | S | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Pseudotremia alecto* | Millipede | S | F1 | Caves and Mines | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Rudiloria trimaculata tortua* | Millipede | O | F2 | Downed Wood | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Rudiloria trimaculata tortua* | Millipede | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

| Scientific Name | Common Name | Status | FRank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Invertebrate** | | | | | | | | | | | |
| *Semionellus placidus* | Millipede | S | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Semionellus placidus* | Millipede | S | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Speyeria diana* | Diana fritillary | S | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Speyeria diana* | Diana fritillary | S | F3 | Canopy Gaps | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Sphaeroderus schaumi* | Schaum's ground beetle | O | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Stygobromus abditus* | James cave amphipod | S | F1 | Caves and Mines | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Stygobromus abditus* | James cave amphipod | S | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Stygobromus cumberlandus* | Cumberland cave amphipod | S | F1 | Caves and Mines | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Xysticus emertoni* | Emerton's crab spider | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Xysticus emertoni* | Emerton's crab spider | O | F1 | Grassy Balds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE

TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE

| Taxa: Reptile | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Elaphe guttata guttata* | Corn snake | O | F3 | Snags | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Elaphe guttata guttata* | Corn snake | O | F3 | Mature Yellow Pine Forests | 4 | 5 | 4 | 3 | 3 | 4 | 4 |
| *Elaphe guttata guttata* | Corn snake | O | F3 | Downed Wood | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Elaphe guttata guttata* | Corn snake | O | F3 | Woodlands-Savannas-Grasslands | 4 | 4 | 4 | 3 | 3 | 4 | 4 |
| *Eumeces anthracinus* | Coal skink | O | F1 | Mature Oak Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Eumeces anthracinus* | Coal skink | O | F1 | Mixed landscapes | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Eumeces anthracinus* | Coal skink | O | F1 | Rock Outcrops & Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Eumeces anthracinus* | Coal skink | O | F1 | Mature Mesic Hard-woods | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Eumeces anthracinus* | Coal skink | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Eumeces anthracinus* | Coal skink | O | F1 | Canopy Gaps | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Opheodrys vernalis* | Smooth green snake | O | F1 | Grassy Balds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Opheodrys vernalis* | Smooth green snake | O | F1 | High Elevation Early Succession | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Opheodrys vernalis* | Smooth green snake | O | F1 | Shrub Balds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Pituophis melanoleucus melanoleucus* | Northern pine snake | O | F1 | Downed Wood | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Pituophis melanoleucus melanoleucus* | Northern pine snake | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Pituophis melanoleucus melanoleucus* | Northern pine snake | O | F1 | Mature Yellow Pine Forests | 2 | 3 | 2 | 1 | 1 | 2 | 2 |
| *Thamnophis sauritus sauritus* | Eastern ribbon snake | O | F3 | Open Wetlands | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Thamnophis sauritus sauritus* | Eastern ribbon snake | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Thamnophis sauritus sauritus* | Eastern ribbon snake | O | F3 | Downed Wood | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Thamnophis sauritus sauritus* | Eastern ribbon snake | O | F3 | Early-Successional Riparian | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| Scientific Name | Common Name | Status | F Rank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Plant-Vascular** | | | | **Scientific Name** | | | | | | | |
| *Abies fraseri* | Fraser fir | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Aconitum reclinatum* | Trailing wolfsbane | S | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Aconitum uncinatum* | Blue monkshood | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Aconitum uncinatum* | Blue monkshood | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Aconitum uncinatum* | Blue monkshood | O | F3 | Basic Mesic Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Aconitum uncinatum* | Blue monkshood | O | F3 | Mature High-Elevation Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Adlumia fungosa* | Climbing fumatory | O | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Adlumia fungosa* | Climbing fumatory | O | F2 | Late Successional Riparian | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Adlumia fungosa* | Climbing fumatory | O | F2 | Basic Mesic Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Agastache scrophulariifolia* | Giant purple hyssop | O | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Agastache scrophulariifolia* | Giant purple hyssop | O | F2 | Basic Mesic Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Arabis glabra* | Tower mustard | O | F1 | Early-Successional Forests | 2 | 2 | 3 | 1 | 2 | 1 | 2 |
| *Arabis glabra* | Tower mustard | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Arnoglossum muehlenbergii* | Great Indian plantain | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Asplenium pinnatifidum* | Lobed spleenwort | O | F3 | Rock Outcrops and Cliffs | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Asplenium resiliens* | Blackstem spleenwort | O | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Aster oblongifolius* | Aromatic aster | O | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Aster surculosus* | Creeping aster | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Aster surculosus* | Creeping aster | O | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Athyrium pycnocarpon* | Narrow-leaved glade fern | O | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Athyrium pycnocarpon* | Narrow-leaved glade fern | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Baptisia australis* | Blue wild indigo | O | F1 | Early-Successional Forests | 2 | 2 | 3 | 1 | 2 | 1 | 2 |
| *Baptisia australis* | Blue wild indigo | O | F1 | River Channels | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Bartonia virginica* | Yellow screwstem | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Berberis canadensis* | American barberry | S | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Berberis canadensis* | American barberry | S | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Betula uber* | Virginia round-leaf birch | F | F1 | Early-Successional Riparian | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Betula uber* | Virginia round-leaf birch | F | F1 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

**TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE**

TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE

| Scientific Name | Common Name | Status | F Rank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Plant-Vascular** | | | | | | | | | | | |
| *Botrychium matricariifolium* | Chamomile grape fern | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Botrychium matricariifolium* | Chamomile grape fern | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Bouteloua curtipendula* | Side-oats grama | O | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Bouteloua curtipendula* | Side-oats grama | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Boykinia aconitifolia* | Brook saxifrage | O | F3 | River Channels | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Boykinia aconitifolia* | Brook saxifrage | O | F3 | Spray Cliffs | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Buckleya distichophylla* | Piratebush | S | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Buckleya distichophylla* | Piratebush | S | F2 | Mature Oak Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Buckleya distichophylla* | Piratebush | S | F2 | Carolina Hemlock Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Calamagrostis canadensis* | Canada reedgrass | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Calamagrostis canadensis* | Canada reedgrass | O | F3 | Spruce-Fir Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Calamagrostis canadensis* | Canada reedgrass | O | F3 | Grassy Balds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Calamagrostis canadensis* | Canada reedgrass | O | F3 | Mature High-Elevation Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Campanula aparinoides* | Marsh bellflower | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Cardamine clematitis* | Mountain bittercress | S | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Cardamine clematitis* | Mountain bittercress | S | F1 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Cardamine clematitis* | Mountain bittercress | S | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Cardamine flagellifera* | Bittercress | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Cardamine flagellifera* | Bittercress | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Cardamine rotundifolia* | Round-leaved watercress | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Carex buxbaumii* | Brown bog sedge | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Carex buxbaumii* | Brown bog sedge | O | F1 | Open Wetlands | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Carex cristatella* | Crested sedge | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Carex cristatella* | Crested sedge | O | F1 | Grassy Balds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Carex eburnea* | Bristle-leaf sedge | O | F3 | Rock Outcrops and Cliffs | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Carex flava* | Yellow sedge | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Carex hitchcockiana* | Hitchcock's sedge | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Carex lucorum* | Sedge | O | F1 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Carex manhartii* | Manhart's sedge | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Carex oklahomensis* | Sooner Sedge | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Carex pallescens* | Pale sedge | O | F1 | Grassy Balds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Carex pedunculata* | Longstalk sedge | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Carex plantaginea* | Plantain-leaved sedge | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Carex plantaginea* | Plantain-leaved sedge | O | F2 | Basic Mesic Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Carex purpurifera* | Purple sedge | O | F1 | Basic Mesic Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Carex purpurifera* | Purple sedge | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| Scientific Name | Common Name | Status | F Rank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Plant-Vascular** | | | | | | | | | | | |
| *Carex ruthii* | Ruth's sedge | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Carex tetanica* | Rigid sedge | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Carex trisperma* | Three-seeded sedge | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Carex vesicaria* | Inflated sedge | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Carex woodii* | Wood's sedge | O | F3 | Mature Hemlock Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Carex woodii* | Wood's sedge | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Carex woodii* | Wood's sedge | O | F3 | Mature High-Elevation Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Cheilanthes eatonii* | Chestnut lipfern | O | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Cheilanthes eatonii* | Chestnut lipfern | O | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Chenopodium simplex* | Giant-seed goosefoot | O | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Chrysogonum virginianum* | Green-and-gold | O | F3 | Canopy Gaps | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Chrysogonum virginianum* | Green-and-gold | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Chrysosplenium americanum* | Golden saxifrage | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Chrysosplenium americanum* | Golden saxifrage | O | F3 | Late Successional Riparian | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Cleistes bifaria* | Small spreading pogonia | S | F2 | Woodlands-Savannas-Grasslands | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| *Clematis coactilis* | Virginia white-haired leatherflower | S | F2 | Glades and Barrens | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Coeloglossum viride var. virescens* | Long-bracted green orchis | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Collinsia verna* | Eastern blue-eyed Mary | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Corallorhiza bentleyi* | Bently's corralroot | O | F1 | Mixed Landscapes | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Coreopsis verticillata* | Whorled tickseed | O | F2 | Early-Successional Forest | 3 | 3 | 3 | 2 | 3 | 2 | 3 |
| *Coreopsis verticillata* | Whorled tickseed | O | F2 | Woodlands-Savannas-Grasslands | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| *Coreopsis verticillata* | Whorled tickseed | O | F2 | High Elevation Early Succession | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Cuscuta coryli* | Hazell dodder | O | F2 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Cuscuta rostrata* | Beaked dodder | O | F1 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Cuscuta rostrata* | Beaked dodder | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Cuscuta rostrata* | Beaked dodder | O | F1 | Mature Hemlock Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Cymophyllus fraserianus* | Fraser's sedge | O | F3 | Late Successional Riparian | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Cymophyllus fraserianus* | Fraser's sedge | O | F3 | Mature High-Elevation Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Cymophyllus fraserianus* | Fraser's sedge | O | F3 | Mature Hemlock Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Cypripedium reginae* | Showy lady's-slipper | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Cystopteris tenuis* | Upland bladder-fern | O | F3 | Rock Outcrops and Cliffs | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Diarrhena americana* | Eastern beakgrass | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Diervilla lonicera* | Northern bush honeysuckle | O | F2 | Shrub Balds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Diervilla lonicera* | Northern bush honeysuckle | O | F2 | Glades and Barrens | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Diervilla lonicera* | Northern bush honeysuckle | O | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

**TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE**

TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE

| Scientific Name | Common Name | Status | F Rank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Plant-Vascular** | | | | | | | | | | | |
| *Diphylleia cymosa* | Umbrella leaf | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Diphylleia cymosa* | Umbrella leaf | O | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Dirca palustris* | Leatherwood | O | F2 | Late Successional Riparian | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Dirca palustris* | Leatherwood | O | F2 | Basic Mesic Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Dirca palustris* | Leatherwood | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Dodecatheon meadia ssp. meadia* | Eastern shooting star | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Dodecatheon meadia ssp. meadia* | Eastern shooting star | O | F2 | Basic Mesic Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Dryopteris cristata* | Crested shield fern | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Dryopteris goldiana* | Goldie's woodfern | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Elodea canadensis* | Broad waterweed | O | F3 | Lakeshores | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Elodea canadensis* | Broad waterweed | O | F3 | Open Wetlands | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Elymus canadensis* | Nodding wild rye | O | F1 | Early-Successional Riparian | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Elymus canadensis* | Nodding wild rye | O | F1 | River Channels | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Epilobium angustifolium* | Fireweed | O | F2 | Woodlands-Savannas-Grasslands | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| *Epilobium angustifolium* | Fireweed | O | F2 | Grassy Balds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Epilobium angustifolium* | Fireweed | O | F2 | Canopy Gaps | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Epilobium leptophyllum* | Linear-leaved willow-herb | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Epilobium leptophyllum* | Linear-leaved willow-herb | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Eriogonum allenii* | Shalebarren wild buckwheat | O | F2 | Glades and Barrens | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Eriophorum virginicum* | Tawny cotton-grass | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Eupatorium godfreyanum* | Godfrey's thoroughwort | O | F3 | Mature Oak Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Eupatorium godfreyanum* | Godfrey's thoroughwort | O | F3 | High Elevation Early Succession | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Eupatorium incarnatum* | Pink thoroughwort | O | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Eupatorium incarnatum* | Pink thoroughwort | O | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Eupatorium maculatum* | Spotted joe-pye weed | O | F1 | Grassy Balds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Eupatorium maculatum* | Spotted joe-pye weed | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Euphorbia commutata* | Cliff spurge | O | F3 | Glades and Barrens | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Gaylussacia brachycera* | Box huckleberry | O | F2 | Table Mountain Pine Forests | 2 | 3 | 2 | 2 | 2 | 2 | 2 |
| *Gaylussacia brachycera* | Box huckleberry | O | F2 | Woodlands-Savannas-Grasslands | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| *Gaylussacia brachycera* | Box huckleberry | O | F2 | Mature Yellow Pine Forests | 3 | 4 | 3 | 2 | 2 | 3 | 3 |
| *Gentiana austromontana* | Appalachian gentian | S | F3 | Grassy Balds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Gentiana austromontana* | Appalachian gentian | S | F3 | Mature High-Elevation Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Gentianopsis crinita* | Fringed gentian | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

| Scientific Name | Common Name | Status | F Rank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Plant-Vascular** | | | | | | | | | | | |
| *Goodyera repens var. ophioides* | Dwarf rattlesnake plantain | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Goodyera repens var. ophioides* | Dwarf rattlesnake plantain | O | F2 | Mature Hemlock Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Helianthus atrorubens* | Savanna hairy sunflower | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Helianthus laevigatus* | Smooth sunflower | O | F3 | Glades and Barrens | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Helianthus laevigatus* | Smooth sunflower | O | F3 | Woodlands-Savannas-Grasslands | 4 | 4 | 4 | 3 | 3 | 4 | 4 |
| *Heuchera americana var. hispida* | Rough alumroot | O | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Heuchera longiflora* | Long-flowered alumroot | O | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Hexalectris spicata* | Crested coral root | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Hexastylis shuttleworthii var. shuttleworthii* | Large-flowered heartleaf | O | F1 | Late Successional Riparian | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Hexastylis shuttleworthii var. shuttleworthii* | Large-flowered heartleaf | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Hydrastis canadensis* | Goldenseal | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Hydrastis canadensis* | Goldenseal | O | F2 | Basic Mesic Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Hydrocotyle americana* | American pennywort | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Hydrocotyle americana* | American pennywort | O | F2 | Open Wetlands | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Hydrophyllum macrophyllum* | Largeleaf waterleaf | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Hydrophyllum macrophyllum* | Largeleaf waterleaf | O | F3 | Basic Mesic Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Hypericum drummondii* | Drummond's St. John's wort | O | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Hypericum mitchellianum* | Mitchell's St. John's-wort | S | F3 | Grassy Balds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Hypericum mitchellianum* | Mitchell's St. John's-wort | S | F3 | Woodlands-Savannas-Grasslands | 4 | 4 | 4 | 3 | 3 | 4 | 4 |
| *Ilex collina* | Long-stalked holly | S | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Isotria medeoloides* | Small whorled pogonia | F | F1 | Mature Hemlock Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Isotria medeoloides* | Small whorled pogonia | F | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Jeffersonia diphylla* | Twinleaf | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Jeffersonia diphylla* | Twinleaf | O | F2 | Basic Mesic Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Juglans cinerea* | Butternut | S | F3 | Basic Mesic Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Juglans cinerea* | Butternut | S | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Juglans cinerea* | Butternut | S | F3 | Late Successional Riparian | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Juncus brachycephalus* | Small-head rush | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Juncus brevicaudatus* | Narrow-panicled rush | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Juncus subcaudatus* | Woods rush | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

**TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE**

TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE

| Scientific Name | Common Name | Status | F Rank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Plant-Vascular** | | | | | | | | | | | |
| *Lathyrus venosus* | Smooth veiny peavine | O | F3 | Woodlands-Savannas-Grasslands | 4 | 4 | 4 | 3 | 3 | 4 | 4 |
| *Lathyrus venosus* | Smooth veiny peavine | O | F3 | Mature Oak Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Leucothoe fontanesiana* | Highland dog-hobble | O | F1 | Mature Hemlock Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Liatris turgida* | Turgid gay-feather | S | F2 | Glades and Barrens | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Lilium grayi* | Gray's lily | S | F1 | Grassy Balds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Lilium grayi* | Gray's lily | S | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Liparis loeselii* | Loesel's twayblade | O | F1 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Liparis loeselii* | Loesel's twayblade | O | F1 | Mature Hemlock Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Liparis loeselii* | Loesel's twayblade | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Listera smallii* | Kidney-leaf twayblade | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Lithospermum latifolium* | American gromwell | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Lycopodiella inundata* | Northern bog clubmoss | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Lycopodium annotinum* | Stiff clubmoss | O | F2 | Spruce-Fir Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Lycopodium annotinum* | Stiff clubmoss | O | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Lygodium palmatum* | Climbing fern | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Lygodium palmatum* | Climbing fern | O | F2 | Late Successional Riparian | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Lysimachia terrestris* | Swamp loosestrife | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Meehania cordata* | Heartleaf meehania | O | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Meehania cordata* | Heartleaf meehania | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Melanthium latifolium* | Broadleaf bunchflower | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Melanthium latifolium* | Broadleaf bunchflower | O | F3 | Canopy Gaps | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Melanthium parviflorum* | Small-flowered false hellebore | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Melica nitens* | Three-flowered melic grass | O | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Melica nitens* | Three-flowered melic grass | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Melica nitens* | Three-flowered melic grass | O | F1 | Mature Yellow Pine Forests | 2 | 3 | 2 | 1 | 1 | 2 | 2 |
| *Melica nitens* | Three-flowered melic grass | O | F1 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Melica nitens* | Three-flowered melic grass | O | F1 | Basic Mesic Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Melica nitens* | Three-flowered melic grass | O | F1 | Canopy Gaps | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Mertensia virginica* | Virginia bluebell | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Mertensia virginica* | Virginia bluebell | O | F3 | Late Successional Riparian | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

| Scientific Name | Common Name | Status | F Rank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Plant-Vascular** | | | | | | | | | | | |
| *Monarda didyma* | Oswego Tea | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Monotropsis odorata* | Sweet pinesap | S | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Monotropsis odorata* | Sweet pinesap | S | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Monotropsis odorata* | Sweet pinesap | S | F1 | Mature Oak Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Oenothera argillicola* | Shale-barren evening primrose | O | F3 | Glades and Barrens | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Oenothera perennis* | Small sundrops | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Onosmodium virginianum* | Virginia false gromwell | O | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Oryzopsis racemosa* | Black-fruit mountain ricegrass | O | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Osmunda x ruggii* | Interrupted royal fern | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Packera plattensis* | Prairie ragwort | O | F3 | Glades and Barrens | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Packera plattensis* | Prairie ragwort | O | F3 | Rock Outcrops and Cliffs | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Packera plattensis* | Prairie ragwort | O | F3 | Woodlands-Savannas-Grasslands | 4 | 4 | 4 | 3 | 3 | 4 | 4 |
| *Panax quinquefolius* | Ginseng | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Panax quinquefolius* | Ginseng | O | F3 | Basic Mesic Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Parnassia asarifolia* | Kidneyleaf grass-of-parnassus | O | F3 | Late Successional Riparian | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Parnassia asarifolia* | Kidneyleaf grass-of-parnassus | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Parnassia grandifolia* | Large-leaved grass-of-parnassus | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Paronychia argyrocoma* | Silverling | O | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Pellaea atropurpurea* | Purple-stem cliff-break | O | F3 | Rock Outcrops and Cliffs | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Phacelia bipinnatifida* | Fernleaf phacelia | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Phacelia bipinnatifida* | Fernleaf phacelia | O | F3 | Basic Mesic Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Phacelia dubia* | Phacelia | O | F3 | Glades and Barrens | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Phacelia fimbriata* | Fringed scorpion-weed | O | F2 | Basic Mesic Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Phacelia fimbriata* | Fringed scorpion-weed | O | F2 | Spruce-Fir Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Phacelia fimbriata* | Fringed scorpion-weed | O | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Philadelphus hirsutus* | Streambank mock orange | O | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Phlox amplifolia* | Broadleaf phlox | O | F1 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Phlox buckleyi* | Sword-leaved phlox | S | F2 | Glades and Barrens | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Platanthera flava var. herbiola* | Turbercled rein-orchid | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Platanthera orbiculata* | Large round-leaved orchid | O | F3 | Mature High-Elevation Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Platanthera orbiculata* | Large round-leaved orchid | O | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

**TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE**

TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE

| Scientific Name | Common Name | Status | F Rank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Plant-Vascular** | | | | | | | | | | | |
| *Platanthera psycodes* | Small purple-fringed orchid | O | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Platanthera psycodes* | Small purple-fringed orchid | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Poa paludigena* | Bog bluegrass | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Polygonum arifolium* | Halberdleaf tearthumb | O | F2 | Open Wetlands | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Polygonum arifolium* | Halberdleaf tearthumb | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Polygonum cilinode* | Fringed black bindweed | O | F2 | Canopy Gaps | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Polygonum cilinode* | Fringed black bindweed | O | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Populus grandidentata* | Large-tooth aspen | O | F3 | Rock Outcrops and Cliffs | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Populus grandidentata* | Large-tooth aspen | O | F3 | Carolina Hemlock Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Populus grandidentata* | Large-tooth aspen | O | F3 | Woodlands-Savannas-Grasslands | 4 | 4 | 4 | 3 | 3 | 4 | 4 |
| *Prenanthes roanensis* | Roan rattlesnake-root | S | F1 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Prenanthes roanensis* | Roan rattlesnake-root | S | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Prenanthes roanensis* | Roan rattlesnake-root | S | F1 | Mixed Landscapes | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Prosartes maculatum* | Spotted mandarin | O | F1 | Mature High-Elevation Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Prunus alleghaniensis* | Alleghany plum | O | F2 | Mature Oak Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Prunus alleghaniensis* | Alleghany plum | O | F2 | Glades and Barrens | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Prunus alleghaniensis* | Alleghany plum | O | F2 | Woodlands-Savannas-Grasslands | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| *Pycnanthemum torrei* | Torrey mountain mint | S | F1 | Canopy Gaps | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Rhododendron arborescens* | Smooth azalea | O | F2 | Late Successional Riparian | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Rhododendron arborescens* | Smooth azalea | O | F2 | River Channels | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Rhododendron arborescens* | Smooth azalea | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Rhododendron cumberlandense* | Cumberland azalea | O | F2 | Grassy Balds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Rhododendron cumberlandense* | Cumberland azalea | O | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Rhododendron cumberlandense* | Cumberland azalea | O | F2 | Mature Oak Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Rudbeckia triloba var. pinnatiloba* | Pinnately-lobed brown-eyed sunflower | O | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Rudbeckia triloba var. pinnatiloba* | Pinnately-lobed brown-eyed sunflower | O | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Ruellia purshiana* | Pursh's wild petunia | O | F3 | Woodlands-Savannas-Grasslands | 4 | 4 | 4 | 3 | 3 | 4 | 4 |
| *Ruellia purshiana* | Pursh's wild petunia | O | F3 | Mature Oak Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Ruellia purshiana* | Pursh's wild petunia | O | F3 | Glades and Barrens | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Sanicula trifoliata* | Large-fruited snakeroot | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Sanicula trifoliata* | Large-fruited snakeroot | O | F1 | Basic Mesic Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

| Scientific Name | Common Name | Status | F Rank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Plant-Vascular** | | | | | | | | | | | |
| *Saxifraga caroliniana* | Carolina saxifrage | S | F2 | Spray Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Saxifraga caroliniana* | Carolina saxifrage | S | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Saxifraga michauxii* | Michaux's saxifrage | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Saxifraga michauxii* | Michaux's saxifrage | O | F3 | Spray Cliffs | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Scirpus ancistrochaetus* | Northeastern bulrush | O | F1 | Open Wetlands | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Scutellaria saxatilis* | Rock skullcap | S | F3 | Mature Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Scutellaria saxatilis* | Rock skullcap | S | F3 | Mature High-Elevation Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Sibbaldiopsis tridentata* | Three-toothed cinquefoil | O | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Sibbaldiopsis tridentata* | Three-toothed cinquefoil | O | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Sibbaldiopsis tridentata* | Three-toothed cinquefoil | O | F1 | Grassy Balds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Silene rotundifolia* | Round-leaved fire pink | O | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Silene rotundifolia* | Round-leaved fire pink | O | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Solidago arguta var. harrisii* | Shale-barren goldenrod | O | F3 | Glades and Barrens | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Solidago squarrosa* | Squarrose goldenrod | O | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Solidago squarrosa* | Squarrose goldenrod | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Sparganium chlorocarpum* | Narrow-leaf burreed | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Spartina pectinata* | Freshwater cordgrass | O | F1 | River Channels | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Spartina pectinata* | Freshwater cordgrass | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Spiraea alba* | Narrow-leaved meadow-sweet | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Spiraea virginiana* | Virginia spiraea | F | F1 | River Channels | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Stellaria longifolia* | Longleaf stitchwort | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Stellaria longifolia* | Longleaf stitchwort | O | F3 | Open Wetlands | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Streptopus roseus* | Rosy twisted-stalk | O | F3 | Mature High-Elevation Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Streptopus roseus* | Rosy twisted-stalk | O | F3 | Spruce-Fir Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Symphoricarpos albus var. albus* | Snowberry | O | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Synandra hispidula* | Gyandotte beauty | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Talinum teretifolium* | Roundleaf flame-flower | O | F1 | Glades and Barrens | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Thalictrum coriaceum* | Leatherleaf meadowrue | O | F2 | Mature Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Thalictrum coriaceum* | Leatherleaf meadowrue | O | F2 | Basic Mesic Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Thermopsis mollis* | Appalachian golden-banner | O | F2 | Woodlands-Savannas-Grasslands | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| *Thuja occidentalis* | Northern white cedar | O | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Thuja occidentalis* | Northern white cedar | O | F2 | River Channels | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Trichostema brachiatum* | Glade bluecurls | O | F3 | Glades and Barrens | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Trichostema brachiatum* | Glade bluecurls | O | F3 | Rock Outcrops and Cliffs | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

**TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE**

TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE

| Scientific Name | Common Name | Status | F Rank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Plant-Vascular** | | | | | | | | | | | |
| *Trientalis borealis* | Northern starflower | O | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Trifolium virginicum* | Kate's mountain clover | O | F2 | Glades and Barrens | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Triosteum aurantiacum* | Horse gentian | O | F2 | Basic Mesic Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Triosteum aurantiacum* | Horse gentian | O | F2 | Woodlands-Savannas-Grasslands | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| *Triphora trianthophora* | Nodding pogonia | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Tsuga caroliniana* | Carolina hemlock | S | F3 | Carolina Hemlock Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Veronica americana* | American speedwell | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Veronica scutellata* | Marsh speedwell | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Vicia americana* | American purple vetch | O | F1 | River Channels | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Vicia americana* | American purple vetch | O | F1 | Woodlands-Savannas-Grasslands | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Viola conspersa* | American dog violet | O | F3 | Mature High-Elevation Mesic Hardwood Forests | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| *Viola conspersa* | American dog violet | O | F3 | Bogs, Fens, Seeps, Seasonal Ponds | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Woodsia appalachiana* | Appalachian cliff fern | O | F3 | Rock Outcrops and Cliffs | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Woodsia ilvensis* | Rusty cliff fern | O | F2 | Rock Outcrops and Cliffs | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Xerophyllum asphodeloides* | Eastern turkey beard | O | F3 | Woodlands-Savannas-Grasslands | 4 | 4 | 4 | 3 | 3 | 4 | 4 |
| *Xerophyllum asphodeloides* | Eastern turkey beard | O | F3 | Table Mountain Pine Forests | 3 | 4 | 3 | 3 | 3 | 3 | 3 |

| Scientific Name | Common Name | Status | F Rank | Habitat Element | Viability Risk by Alternative | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | D | E | F | G | I |
| **Taxa: Plant-Nonvascular** | | | | | | | | | | | |
| *Bazzania nudicaulis* | Liverwort | S | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Bryoerythrophyllum ferruginascens* | Moss | O | F1 | Late Successional Riparian | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Entodon sullivantii* | Sullivant's entodon | O | F1 | Snags | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Entodon sullivantii* | Sullivant's entodon | O | F1 | Mature Mesic Hardwood Forests | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Frullania oakesiana* | Liverwort | S | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Leptoscyphus cuneifolius* | Liverwort | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Plagiochila austinii* | Liverwort | S | F1 | Spray Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Plagiochila austinii* | Liverwort | S | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Plagiochila austinii* | Liverwort | S | F1 | Late Successional Riparian | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Plagiochila corniculata* | Liverwort | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Plagiochila sullivantii var. sullivantii* | Sullivant's leafy liverwort | O | F1 | Spray Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Plagiochila sullivantii var. sullivantii* | Sullivant's leafy liverwort | O | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Plagiochila sullivantii var. sullivantii* | Sullivant's leafy liverwort | O | F1 | Late Successional Riparian | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| *Sphagnum angustifolium* | Narrowleaf peatmoss | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Sphagnum capillifolium* | Pom-pom peat moss | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Sphagnum fallax* | Pretty peatmoss | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Sphagnum fimbriatum* | Peatmoss | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Sphagnum flexuosum* | Flexuose peatmoss | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Sphagnum girgensohnii* | Girgensohn's peatmoss | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Sphagnum girgensohnii* | Girgensohn's peatmoss | O | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Sphagnum girgensohnii* | Girgensohn's peatmoss | O | F1 | Rock Outcrops and Cliffs | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Sphagnum quinquefarium* | Five-rowed peatmoss | O | F2 | Bogs, Fens, Seeps, Seasonal Ponds | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Sphagnum quinquefarium* | Five-rowed peatmoss | O | F2 | Spruce-Fir Forests | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Sphagnum quinquefarium* | Five-rowed peatmoss | O | F2 | Mature High-Elevation Mesic Hardwood Forests | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| *Sphagnum rubellum* | Red peatmoss | O | F? | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Sphagnum subtile* | Delicate peatmoss | O | F1 | Bogs, Fens, Seeps, Seasonal Ponds | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Sphenolobopsis pearsonii* | Liverwort | S | F1 | Spruce-Fir Forests | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**TABLE E-1. RISK TO SPECIES VIABILITY FOR EACH SPECIES/HABITAT RELATIONSHIP BY ALTERNATIVE**

**TABLE E-2. SUMMARY OF EXPECTED ABUNDANCE, DISTRIBUTION, LIKELIHOOD OF LIMITATION, AND MANAGEMENT EFFECTS FOR HABITAT ELEMENTS BY FOREST PLAN REVISION ALTERNATIVES.**

**KEYS TO CODES:**

## HABITAT ABUNDANCE

Values used to categorize projected abundance of each habitat element after 50 years of implementing each forest plan revision alternative.

| Habitat Abundance Descriptions | |
|---|---|
| **R** | **Rare.** The habitat element is rare, with generally less than 100 occurrences, or patches of the element generally covering less than one percent of the planning area. |
| **O** | **Occasional.** The habitat element is encountered occasionally, and generally found on one to ten percent of the planning area. |
| **C** | **Common.** The habitat element is abundant and frequently encountered, and generally found on more than ten percent of the planning area. |

## HABITAT DISTRIBUTION

Values used to categorize projected distribution of each habitat element after 50 years of implementing each forest plan revision alternative.

| Habitat Distribution Descriptions | |
|---|---|
| **P** | **Poor.** The habitat element is poorly distributed within the planning area and intermixed lands relative to conditions present prior to European settlement. Number and size of high quality habitat patches is greatly reduced. |
| **F** | **Fair.** The habitat element is fairly well distributed within the planning area and intermixed lands relative to conditions present prior to European settlement. Number and size of high quality habitat patches is somewhat reduced. |
| **G** | **Good.** The habitat element is well distributed within the planning area and intermixed lands relative to conditions present prior to European settlement. Number and size of high quality habitat patches is similar to or only slightly reduced relative to reference conditions. |

## LIKELIHOOD OF LIMITATION

General likelihood that the habitat element will be limiting to viability of associated species based on its abundance and distribution. See Chapter 3, FEIS Terrestrial Viability Evaluation, for description of process used to determine likelihood of limitation.

| Likelihood of Limitation Descriptions | |
|---|---|
| L | Low |
| M | Moderate |
| H | High |

**TABLE E-2. SUMMARY OF EXPECTED ABUNDANCE, DISTRIBUTION, LIKELIHOOD OF LIMITATION, AND MANAGEMENT EFFECTS FOR HABITAT ELEMENTS BY FOREST PLAN REVISION ALTERNATIVES.**

**KEYS TO CODES:**

## MANAGEMENT EFFECT

Values used to categorize the role of management effects on each habitat element for each forest plan revision alternative.

| | Management Effects Descriptions |
|---|---|
| **1** | Abundance and distribution of the habitat element is maintained or improved by providing optimal protection, maintenance, and restoration to all occurrences (with limited exceptions in some cases). Little additional opportunity exists to decrease risk to viability of associated species because management is at or near optimal. |
| **2** | Abundance and distribution of the habitat element is improved through purposeful restoration, either through active management or passively by providing for successional progression. Opportunity for decreasing risk to associated species is primarily through increasing rates of restoration, where possible. |
| **3** | The habitat element is maintained at approximately current distribution and abundance, though location of elements may shift over time as a result of management action or inaction. Opportunity to reduce risk to viability of associated species is primarily through adopting and implementing objectives to increase abundance and distribution of the habitat element. |
| **4** | Regardless of management efforts, the habitat element is expected to decrease in distribution and abundance as a result of factors substantially outside of Forest Service control (e.g., invasive pests, acid deposition). Opportunity to reduce risk to viability of associated species is primarily through cooperative ventures with other agencies and organizations. |
| **5** | The habitat element is expected to decrease in distribution and abundance as a result of management action or inaction. Opportunity to reduce risk to viability of associated species is primarily through adopting and implementing objectives to maintain or increase this habitat element. |

TABLE E-2. SUMMARY OF EXPECTED ABUNDANCE, DISTRIBUTION, LIKELIHOOD OF LIMITATION, & MGMT EFFECTS FOR HABITAT ELEMENTS BY ALTERNATIVE.

| | Alternative | | | | | | |
|---|---|---|---|---|---|---|---|
| **Habitat Elements** | **A** | **B** | **D** | **E** | **F** | **G** | **I** |
| **Bogs, Fens, Seeps, Seasonal Ponds** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | P | P | P | P | P | P | P |
| Likelihood of Limitation | H | H | H | H | H | H | H |
| Management Effects | 1 | 1 | 1 | 1 | 3 | 1 | 1 |
| **Open Wetlands** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | P | P | P | P | P | P | P |
| Likelihood of Limitation | H | H | H | H | H | H | H |
| Management Effects | 1 | 1 | 1 | 1 | 3 | 1 | 1 |
| **River Channels** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | P | P | P | P | P | P | P |
| Likelihood of Limitation | H | H | H | H | H | H | H |
| Management Effects | 1 | 1 | 1 | 1 | 3 | 1 | 1 |
| **Glades and Barrens** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | F | F | F | F | F | F | F |
| Likelihood of Limitation | H | H | H | H | H | H | H |
| Management Effects | 1 | 1 | 1 | 1 | 3 | 1 | 1 |
| **Carolina Hemlock Forests** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | P | P | P | P | P | P | P |
| Likelihood of Limitation | H | H | H | H | H | H | H |
| Management Effects | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **Table Mountain Pine Forests** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | F | G | F | P | P | F | F |
| Likelihood of Limitation | H | M | H | H | H | H | H |
| Management Effects | 2 | 2 | 2 | 3 | 5 | 2 | 2 |
| **Spruce-Fir Forests** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | P | P | P | P | P | P | P |
| Likelihood of Limitation | H | H | H | H | H | H | H |
| Management Effects | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **Beech Gap Forests** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | P | P | P | P | P | P | P |
| Likelihood of Limitation | H | H | H | H | H | H | H |
| Management Effects | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **Basic Mesic Forests** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | F | F | F | F | P | F | F |
| Likelihood of Limitation | H | H | H | H | H | H | H |
| Management Effects | 1 | 1 | 1 | 1 | 3 | 1 | 1 |
| **Rock Outcrops and Cliffs** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | G | G | G | G | G | G | G |
| Likelihood of Limitation | M | M | M | M | M | M | M |
| Management Effects | 1 | 1 | 1 | 1 | 3 | 1 | 1 |

| Habitat Elements | Alternative A | B | D | E | F | G | I |
|---|---|---|---|---|---|---|---|
| **Spray Cliffs** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | G | G | G | G | G | G | G |
| Likelihood of Limitation | M | M | M | M | M | M | M |
| Management Effects | 1 | 1 | 1 | 1 | 3 | 1 | 1 |
| **Grassy Balds** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | F | P | F | F | F | P | F |
| Likelihood of Limitation | H | H | H | H | H | H | H |
| Management Effects | 3 | 5 | 3 | 3 | 3 | 5 | 3 |
| **Shrub Balds** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | F | F | F | F | F | P | F |
| Likelihood of Limitation | H | H | H | H | H | H | H |
| Management Effects | 3 | 3 | 3 | 3 | 3 | 5 | 3 |
| **Canebrakes** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | P | P | P | P | P | P | P |
| Likelihood of Limitation | H | H | H | H | H | H | H |
| Management Effects | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| **Caves and Mines** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | G | G | G | G | G | G | G |
| Likelihood of Limitation | M | M | M | M | M | M | M |
| Management Effects | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **Mature Mesic Hardwood Forests** | | | | | | | |
| Abundance | C | C | C | C | C | C | C |
| Distribution | F | F | F | F | F | F | F |
| Likelihood of Limitation | L | L | L | L | L | L | L |
| Management Effects | 2 | 2 | 2 | 1 | 3 | 1 | 2 |
| **Mature High-Elevation Mesic Hardwood Forests** | | | | | | | |
| Abundance | O | O | O | O | O | O | O |
| Distribution | G | G | G | G | G | G | G |
| Likelihood of Limitation | L | L | L | L | L | L | L |
| Management Effects | 2 | 2 | 2 | 1 | 3 | 1 | 2 |
| **Mature Hemlock Forests** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | P | P | P | P | P | P | P |
| Likelihood of Limitation | H | H | H | H | H | H | H |
| Management Effects | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **Mature Oak Forests** | | | | | | | |
| Abundance | C | C | C | C | C | C | C |
| Distribution | F | F | F | F | F | F | F |
| Likelihood of Limitation | L | L | L | L | L | L | L |
| Management Effects | 3 | 3 | 3 | 5 | 3 | 3 | 3 |
| **Mature Yellow Pine Forests** | | | | | | | |
| Abundance | O | O | O | O | O | O | O |
| Distribution | F | G | F | P | P | F | F |
| Likelihood of Limitation | M | M | M | H | H | M | M |
| Management Effects | 2 | 2 | 2 | 3 | 5 | 2 | 2 |

**TABLE E-2. SUMMARY OF EXPECTED ABUNDANCE, DISTRIBUTION, LIKELIHOOD OF LIMITATION, & MGMT EFFECTS FOR HABITAT ELEMENTS BY ALTERNATIVE.**

TABLE E-2. SUMMARY OF EXPECTED ABUNDANCE, DISTRIBUTION, LIKELIHOOD OF LIMITATION, & MGMT EFFECTS FOR HABITAT ELEMENTS BY ALTERNATIVE.

| | Alternative | | | | | | |
|---|---|---|---|---|---|---|---|
| **Habitat Elements** | **A** | **B** | **D** | **E** | **F** | **G** | **I** |
| **Early Succession** | O | O | O | R | O | R | O |
| Abundance | F | F | G | P | F | P | F |
| Distribution | M | M | M | H | M | H | M |
| Likelihood of Limitation | 3 | 3 | 2 | 5 | 2 | 5 | 3 |
| Management Effects | | | | | | | |
| **High Elevation Early Succession** | R | R | R | R | R | R | R |
| Abundance | F | F | F | P | F | P | F |
| Distribution | H | H | H | H | H | H | H |
| Likelihood of Limitation | 3 | 3 | 2 | 5 | 2 | 5 | 3 |
| Management Effects | | | | | | | |
| **Mature Forest Interiors** | C | C | C | C | C | C | C |
| Abundance | F | F | F | F | F | F | F |
| Distribution | L | L | L | L | L | L | L |
| Likelihood of Limitation | 3 | 2 | 3 | 1 | 3 | 1 | 2 |
| Management Effects | | | | | | | |
| **Canopy Gaps** | C | C | C | C | C | C | C |
| Abundance | G | G | G | G | G | G | G |
| Distribution | L | L | L | L | L | L | L |
| Likelihood of Limitation | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Management Effects | | | | | | | |
| **Woodlands, Savannas, and Grasslands** | O | O | O | R | R | O | O |
| Abundance | F | F | F | P | P | F | F |
| Distribution | M | M | M | H | H | M | M |
| Likelihood of Limitation | 2 | 2 | 2 | 3 | 5 | 2 | 2 |
| Management Effects | | | | | | | |
| **Mixed Landscapes** | C | C | C | C | C | C | C |
| Abundance | G | G | G | G | G | G | G |
| Distribution | L | L | L | L | L | L | L |
| Likelihood of Limitation | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Management Effects | | | | | | | |
| **Late Successional Riparian** | C | C | C | C | C | C | C |
| Abundance | G | G | G | G | G | G | G |
| Distribution | L | L | L | L | L | L | L |
| Likelihood of Limitation | 1 | 1 | 1 | 1 | 2 | 1 | 1 |
| Management Effects | | | | | | | |
| **Early-Successional Riparian** | R | R | R | R | R | R | R |
| Abundance | F | F | F | F | F | F | F |
| Distribution | H | H | H | H | H | H | H |
| Likelihood of Limitation | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Management Effects | | | | | | | |
| **Snags** | C | C | C | C | C | C | C |
| Abundance | G | G | G | G | G | G | G |
| Distribution | L | L | L | L | L | L | L |
| Likelihood of Limitation | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Management Effects | | | | | | | |
| **Downed Wood** | C | C | C | C | C | C | C |
| Abundance | F | F | F | F | F | F | F |
| Distribution | L | L | L | L | L | L | L |
| Likelihood of Limitation | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Management Effects | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| Habitat Elements | Alternative A | B | D | E | F | G | I |
|---|---|---|---|---|---|---|---|
| **Den Trees** | | | | | | | |
| Abundance | O | O | O | O | O | O | O |
| Distribution | F | F | F | F | F | F | F |
| Likelihood of Limitation | M | M | M | M | M | M | M |
| Management Effects | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Hard Mast** | | | | | | | |
| Abundance | C | C | C | C | C | C | C |
| Distribution | F | F | F | F | F | F | F |
| Likelihood of Limitation | L | L | L | L | L | L | L |
| Management Effects | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| **Remoteness** | | | | | | | |
| Abundance | C | C | C | C | C | C | C |
| Distribution | F | F | F | F | F | F | F |
| Likelihood of Limitation | L | L | L | L | L | L | L |
| Management Effects | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| **Lakeshores** | | | | | | | |
| Abundance | R | R | R | R | R | R | R |
| Distribution | G | G | G | G | G | G | G |
| Likelihood of Limitation | M | M | M | M | M | M | M |
| Management Effects | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **Water Quality** | | | | | | | |
| Abundance | C | C | C | C | C | C | C |
| Distribution | F | F | F | F | F | F | F |
| Likelihood of Limitation | L | L | L | L | L | L | L |
| Management Effects | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

TABLE E-2. SUMMARY OF EXPECTED ABUNDANCE, DISTRIBUTION, LIKELIHOOD OF LIMITATION, & MGMT EFFECTS FOR HABITAT ELEMENTS BY ALTERNATIVE.

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# AQUATIC SPECIES VIABILITY

APPENDIX F

**TABLE F-1. VIABILITY OUTCOME, BY WATERSHED, FOR ALL THREATENED, ENDANGERED, SENSITIVE, AND LOCALLY RARE (TESLR) AQUATIC SPECIES ON THE JEFFERSON NATIONAL FOREST.**

**KEYS TO CODES:**

The Ownership Column is the percentage of the watershed managed by the Jefferson National Forest.

The WCR Column is the Watershed Condition Rank. See Chapter 3, Watershed Section for a complete discussion of the derivation of this column.

| **Sources of Impairment:** | |
|---|---|
| S | Sediment |
| P | Point Source Pollution |
| T | Temperature |
| F | Altered Flow |

| **Viability Outcomes Description:** | |
|---|---|
| 1 | Species occurs within watersheds with no impairment. Likelihood of maintaining viability is high. |
| 2 | Species is potentially at risk in the watershed; however, Forest Service may influence conditions in the watershed to keep it well distributed. Therefore, likelihood of maintaining viability is moderate. |
| 3 | Species is potentially at risk within the watershed; however, Forest Service opportunity to affect outcomes for the species in the watershed is limited. Therefore species viability in the watershed is at risk. |
| 4 | The species so rare within the watershed (population is at very low density and/or at only a few local sites) that stochastic events (accidents, weather events, etc.) may place persistence of the species within the watershed at risk. Forest Service may influence conditions in the watershed to keep the species relatively secure. Therefore, likelihood of maintaining viability is moderate to low. |
| 5 | The species so rare within the watershed (population is at very low density and/or at only a few local sites) that stochastic events (accidents, weather events, etc.) may place persistence of the species at risk in the watershed. Forest Service opportunity to affect outcomes for the species in the watershed is limited. Therefore, species viability in the watershed is at risk. |

| **Species Status Description:** | |
|---|---|
| T | Federally Listed as Threatened |
| E | Federally Listed as Endangered |
| C | Candidate for Federal listing |
| S | Forest Service Sensitive |
| LR | Locally Rare |
| X | Extirpated or Extinct |

TABLE F-1. VIABILITY OUTCOME, BY WATERSHED, FOR ALL TESLR AQUATIC SPECIES

| Common Name | Scientific Name | G-Rank | Status[c] | Watershed | Ownership[a] Percent | Viability Outcome[b] | | | | | WCR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 | |
| spring blue darner | Aeshna mutata | G3G4 | LR | 0208020103 | 28 | STF | | P | | | E |
| black-tipped darner | Aeshna tuberculifera | G4 | LR | 0208020103 | 28 | STF | | P | | | E |
| dot-tailed whiteface | Leucorrhinia intacta | G5 | LR | 0208020103 | 28 | STF | | P | | | E |
| James River spinymussel | Pleurobema collina | G1 | E | 0208020103 | 28 | STF | | P | | | E |
| Appalachian jewelwing | Calopteryx angustipennis | G4 | LR | 0208020106 | 0 | STF | | P | | | E |
| Yellow lance | Elliptio lanceolata | G2G3 | S | 0208020106 | 0 | STF | | P | | | E |
| Hagen's bluet | Enallagma hageni | G5 | LR | 0208020106 | 0 | STF | | P | | | E |
| harpoon clubtail | Gomphus descriptus | G4 | LR | 0208020106 | 0 | STF | | P | | | E |
| Maureen's shale stream beetle | Hydraena maureenae | G1G3 | S | 0208020106 | 0 | STF | | P | | | E |
| Green floater | Lasmigona subviridis | G3 | S | 0208020106 | 0 | STF | | P | | | E |
| Roughhead shiner | Notropis semperasper | G2G3 | S | 0208020106 | 0 | STF | | P | | | E |
| Orangefin madtom | Noturus gilberti | G2 | S | 0208020106 | 0 | STF | | P | | | E |
| Roughhead shiner | Notropis semperasper | G2G3 | S | 0208020107 | 10 | STF | | P | | | A |
| James River spinymussel | Pleurobema collina | G1 | E | 0208020107 | 10 | TF | | SP | | | A |
| Appalachian jewelwing | Calopteryx angustipennis | G4 | LR | 0208020108 | 61 | SPTF | | | | | E |
| Yellow lance | Elliptio lanceolata | G2G3 | S | 0208020108 | 61 | SPTF | | | | | E |
| Atlantic pigtoe | Fusconaia masoni | G2 | S | 0208020108 | 61 | SPTF | | | | | E |

a="Ownership" is the percentage of the watershed managed by the Jefferson National Forest.

b=Under "Viability Outcome": Outcome 1 = Species occurs within watersheds with no impairment. Likelihood of maintaining viability is high. Outcome 2 = Species is potentially at risk in the watershed; however, Forest Service may influence conditions in the watershed to keep it well distributed. Therefore, likelihood of maintaining viability is moderate. Outcome 3 = Species is potentially at risk within the watershed; however, Forest Service opportunity to affect outcomes for the species in the watershed is limited. Therefore species viability in the watershed is at risk. Outcome 4 = The species so rare within the watershed (population is at very low density and/or at only a few local sites) that stochastic events (accidents, weather events, etc.) may place persistence of the species within the watershed at risk. Forest Service may influence conditions in the watershed to keep the species relatively secure. Therefore, likelihood of maintaining viability is moderate to low. Outcome 5 = The species so rare within the watershed (population is at very low density and/or at only a few local sites) that stochastic events (accidents, weather event

c=Under "Status": T=federally threatened, E=federally endangered, C=candidate for federal listing, S=Forest Service sensitive, LR=locally rare, X=extirpated or extinct

| Common Name | Scientific Name | G-Rank | Status[c] | Watershed | Ownership[a] Percent | Viability Outcome[b] | | | | | WCR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 | |
| Green-faced clubtail | Gomphus viridifrons | G3 | S | 0208020108 | 61 | SPTF | | | | | E |
| Roughhead shiner | Notropis semperasper | G2G3 | S | 0208020108 | 61 | SPTF | | | | | E |
| Orangefin madtom | Noturus gilberti | G2 | S | 0208020108 | 61 | SPTF | | | | | E |
| James River spinymussel | Pleurobema collina | G1 | E | 0208020108 | 61 | SPTF | | | | | E |
| Yellow lance | Elliptio lanceolata | G2G3 | S | 0208020109 | 43 | PTF | | S | | | A |
| Atlantic pigtoe | Fusconaia masoni | G2 | S | 0208020109 | 43 | PTF | | S | | | A |
| James River spinymussel | Pleurobema collina | G1 | E | 0208020109 | 43 | PTF | | S | | | A |
| Appalachian jewelwing | Calopteryx angustipennis | G4 | LR | 0208020205 | 4 | TF | | SP | | | A |
| Green floater | Lasmigona subviridis | G3 | S | 0208020301 | 5 | STF | | P | | | E |
| James River spinymussel | Pleurobema collina | G1 | E | 0208020301 | 5 | STF | | P | | | E |
| double-striped clubtail | Lanthus parvulus | G4 | LR | 0301010101 | 1 | TF | | SP | | | A |
| Popeye shiner | Notropis ariommus | G3 | S | 0301010101 | 1 | TF | | SP | | | A |
| Orangefin madtom | Noturus gilberti | G2 | S | 0301010101 | 1 | TF | | SP | | | A |
| Roanoke logperch | Percina rex | G1G2 | E | 0301010101 | 1 | TF | | SP | | | A |
| Orangefin madtom | Noturus gilberti | G2 | S | 0301010102 | 1 | TF | | SP | | | BA |
| Roanoke logperch | Percina rex | G1G2 | E | 0301010102 | 1 | TF | | SP | | | BA |
| Non T/E/S Spp. | Point Source Sensitive | | | 0301010107 | 2 | | | P | | | E |
| Non T/E/S Spp. | Sediment Sensitive | | | 0301010107 | 2 | S | | | | | E |
| Non T/E/S Spp. | Temperature Sensitive | | | 0301010107 | 2 | T | | | | | E |
| Non T/E/S Spp. | Altered Flow Sensitive | | | 0301010108 | 2 | F | | | | | A |
| Non T/E/S Spp. | Point Source Sensitive | | | 0301010108 | 2 | | | P | | | A |
| Non T/E/S Spp. | Sediment Sensitive | | | 0301010108 | 2 | | | S | | | A |
| Non T/E/S Spp. | Temperature Sensitive | | | 0301010108 | 2 | | | T | | | A |
| Non T/E/S Spp. | Altered Flow Sensitive | | | 0505000101 | 3 | F | | | | | A |

**TABLE F-1. VIABILITY OUTCOME, BY WATERSHED, FOR ALL TESLR AQUATIC SPECIES—CONT'D**

TABLE F-1. VIABILITY OUTCOME, BY WATERSHED, FOR ALL TESLR AQUATIC SPECIES - CONT'D

| Common Name | Scientific Name | G-Rank | Status[c] | Watershed | Ownership[a] Percent | Viability Outcome[b] | | | | | WCR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 | |
| Non T/E/S Species | Point Source Sensitive | | | 0505000101 | 3 | | | P | | | A |
| Non T/E/S Species | Sediment Sensitive | | | 0505000101 | 3 | | | S | | | A |
| Non T/E/S Species | Temperature Sensitive | | | 0505000101 | 3 | | | T | | | A |
| Non T/E/S Species | Altered Flow Sensitive | | | 0505000103 | 2 | F | | | | | A |
| Green-faced clubtail | Gomphus viridifrons | G3 | S | 0505000103 | 2 | TF | | SP | | | A |
| Kanawha minnow | Phenacobius teretulus | G3G4 | S | 0505000103 | 2 | STF | | P | | | A |
| Green-faced clubtail | Gomphus viridifrons | G3 | S | 0505000104 | 9 | TF | | SP | | | A |
| Green floater | Lasmigona subviridis | G3 | S | 0505000104 | 9 | TF | | SP | | | A |
| Kanawha minnow | Phenacobius teretulus | G3G4 | S | 0505000104 | 9 | STF | | P | | | A |
| Green-faced clubtail | Gomphus viridifrons | G3 | S | 0505000105 | 23 | PTF | | S | | | A |
| Johnson's pronggill mayfly | Leptophlebia johnsoni | G4 | S | 0505000105 | 23 | PTF | | S | | | A |
| Kanawha minnow | Phenacobius teretulus | G3G4 | S | 0505000105 | 23 | SPTF | | | | | A |
| Nelson's early black stonefly | Taeniopteryx nelsoni | G1 | S | 0505000105 | 23 | PTF | | S | | | A |
| Candy darter | Etheostoma osburni | G3 | S | 0505000106 | 4 | F | | SPT | | | BA |
| Green floater | Lasmigona subviridis | G3 | S | 0505000106 | 4 | TF | | SP | | | BA |
| Kanawha minnow | Phenacobius teretulus | G3G4 | S | 0505000106 | 4 | STF | | P | | | BA |
| Non T/E/S Spp. | Temperature Sensitive | | | 0505000107 | 32 | | T | | | | BA |
| Non T/E/S Spp. | Altered Flow Sensitive | | | 0505000107 | 32 | F | | | | | BA |
| Non T/E/S Spp. | Point Source Sensitive | | | 0505000107 | 32 | P | | | | | BA |
| Non T/E/S Spp. | Sediment Sensitive | | | 0505000107 | 32 | | | S | | | BA |
| Candy darter | Etheostoma osburni | G3 | S | 0505000108 | 18 | PF | | ST | | | BA |
| Green floater | Lasmigona subviridis | G3 | S | 0505000108 | 18 | PTF | | S | | | BA |
| black-tipped darner | Aeshna tuberculifera | G4 | LR | 0505000110 | 10 | TF | | SP | | | BA |
| comet darner | Anax longipes | G5 | LR | 0505000110 | 10 | TF | | SP | | | BA |

| Common Name | Scientific Name | G-Rank | Status[c] | Watershed | Ownership[a] Percent | Viability Outcome[b] | | | | | WCR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 | |
| Green-faced clubtail | Gomphus viridifrons | G3 | S | 0505000110 | 10 | TF | | SP | | | BA |
| double-striped clubtail | Lanthus parvulus | G4 | LR | 0505000110 | 10 | TF | | SP | | | BA |
| Green floater | Lasmigona subviridis | G3 | S | 0505000110 | 10 | TF | | SP | | | BA |
| northern common spreadwing | Lestes disjunctus disjunctus | G5T5 | LR | 0505000110 | 10 | TF | | SP | | | BA |
| dot-tailed whiteface | Leucorrhinia intacta | G5 | LR | 0505000110 | 10 | TF | | SP | | | BA |
| Allegheny snaketail | Ophiogomphus alleghaniensis | G3Q | S | 0505000110 | 10 | TF | | SP | | | BA |
| black-tipped darner | Aeshna tuberculifera | G4 | LR | 0505000201 | 27 | PTF | | S | | | A |
| Hagen's bluet | Enallagma hageni | G5 | LR | 0505000201 | 27 | PTF | | S | | | A |
| Candy darter | Etheostoma osburni | G3 | S | 0505000201 | 27 | PF | T | S | | | A |
| slender emerald | Somatochlora elongata | G5 | LR | 0505000201 | 27 | PTF | | S | | | A |
| white-faced meadowhawk | Sympetrum obtrusum | G5 | LR | 0505000201 | 27 | PTF | | S | | | A |
| Candy darter | Etheostoma osburni | G3 | S | 0505000202 | 31 | PTF | | S | | | A |
| Green floater | Lasmigona subviridis | G3 | S | 0505000202 | 31 | PTF | | S | | | A |
| Kosztarab's common stonefly | Acroneuria kosztarabi | G1 | S | 0505000203 | 20 | PF | | ST | | ST | A |
| black-tipped darner | Aeshna tuberculifera | G4 | LR | 0505000203 | 20 | PTF | | S | | | A |
| Candy darter | Etheostoma osburni | G3 | S | 0505000203 | 20 | PF | T | S | | | A |
| Beartown perlodid stonefly | Isoperla major | G1 | S | 0505000203 | 20 | PF | | ST | | ST | A |
| Tennessee Heelsplitter | Lasmigona holstonia | G3 | S | 0505000203 | 20 | SPTF | | | | | A |
| Green floater | Lasmigona subviridis | G3 | S | 0505000203 | 20 | SPTF | | | | | A |
| William's giant stonefly | Megaleuctra williamsae | G2 | S | 0505000203 | 20 | SPTF | | | | | A |
| Candy darter | Etheostoma osburni | G3 | S | 0505000204 | 14 | TF | | SP | | | A |
| Green floater | Lasmigona subviridis | G3 | S | 0505000204 | 14 | TF | | SP | | | A |
| Non T/E/S Spp. | Altered Flow Sensitive | | | 0505000207 | 3 | F | | | | | A |

**TABLE F-1. VIABILITY OUTCOME, BY WATERSHED, FOR ALL TESLR AQUATIC SPECIES — CONT'D**

TABLE F-1. VIABILITY OUTCOME, BY WATERSHED, FOR ALL TESLR AQUATIC SPECIES—CONT'D

| Common Name | Scientific Name | G-Rank | Status[c] | Watershed | Ownership[a] Percent | Viability Outcome[b] | | | | | WCR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 | |
| Allegheny snaketail | Ophiogomphus alleghaniensis | G3Q | S | 0505000207 | 3 | TF | | SP | | | A |
| Non T/E/S Spp. | Temperature Sensitive | | | 0505000207 | 3 | | | T | | | A |
| Non T/E/S Spp. | Altered Flow Sensitive | | | 0505000210 | 0 | F | | | | | A |
| Non T/E/S Spp. | Point Source Sensitive | | | 0505000210 | 0 | | | P | | | A |
| Non T/E/S Spp. | Sediment Sensitive | | | 0505000210 | 0 | | | S | | | A |
| Non T/E/S Spp. | Temperature Sensitive | | | 0505000210 | 0 | | | T | | | A |
| Non T/E/S Spp. | Altered Flow Sensitive | | | 0507020203 | 1 | F | | | | | E |
| Non T/E/S Spp. | Point Source Sensitive | | | 0507020203 | 1 | | | P | | | E |
| Non T/E/S Spp. | Sediment Sensitive | | | 0507020203 | 1 | S | | | | | E |
| Non T/E/S Spp. | Temperature Sensitive | | | 0507020203 | 1 | T | | | | | E |
| Non T/E/S Spp. | Altered Flow Sensitive | | | 0507020205 | 12 | | | F | | | A |
| Green-faced clubtail | Gomphus viridifrons | G3 | S | 0507020205 | 12 | TF | | SP | | | A |
| Non T/E/S Spp. | Temperature Sensitive | | | 0507020205 | 12 | T | | | | | A |
| Non T/E/S Spp. | Altered Flow Sensitive | | | 0507020206 | 0 | | | F | | | E |
| Non T/E/S Spp. | Point Source Sensitive | | | 0507020206 | 0 | | | P | | | E |
| Non T/E/S Spp. | Sediment Sensitive | | | 0507020206 | 0 | S | | | | | E |
| Non T/E/S Spp. | Temperature Sensitive | | | 0507020206 | 0 | T | | | | | E |
| Cumberland Johnny darter | Etheostoma susanae | G2 | S | 0513010101 | 1 | STF | | P | | | E |
| Blackside dace | Phoxinus cumberlandensis | G2G3 | T | 0513010101 | 1 | STF | | P | | | E |
| black-tipped darner | Aeshna tuberculifera | G4 | LR | 0601010101 | 11 | TF | | SP | | | A |
| elktoe | Alasmidonta marginata | G4 | LR | 0601010101 | 11 | TF | | SP | | | A |
| Spotfin chub | Cyprinella monacha | G2 | T | 0601010101 | 11 | PTF | | S | | | A |
| Slender chub | Erimystax cahni | G1 | T | 0601010101 | 11 | TF | | SP | | | A |
| Shiny pigtoe | Fusconaia cor | G1 | E | 0601010101 | 11 | TF | | SP | | | A |

| Common Name | Scientific Name | G-Rank | Status[c] | Watershed | Ownership[a] Percent | Viability Outcome[b] | | | | | WCR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 | |
| Green-faced club-tail | Gomphus viridi-frons | G3 | S | 0601010101 | 11 | TF | | SP | | | A |
| Mountain brook lamprey | Ichthyomyzon greeleyi | G3G4 | S | 0601010101 | 11 | STF | | P | | | A |
| Spiny riversnail | Io fluvialis | G2 | S | 0601010101 | 11 | STF | | P | | | A |
| Slabside pearly-mussel | Lexingtonia do-labelloides | G2 | S | 0601010101 | 11 | TF | | SP | | | A |
| Popeye shiner | Notropis ariommus | G3 | S | 0601010101 | 11 | TF | | SP | | | A |
| Little-wing pearly-mussel | Pegias fabula | G1 | E | 0601010101 | 11 | TF | | SP | | | A |
| Blotchside log-perch | Percina burtoni | G2 | S | 0601010101 | 11 | TF | | SP | | | A |
| Longhead darter | Percina macro-cephala | G3 | S | 0601010101 | 11 | TF | | SP | | | A |
| Tennessee dace | Phoxinus tennes-seensis | G2G3 | S | 0601010101 | 11 | PTF | | S | | | A |
| Fluted kidneyshell | Ptychobranchus subtentum | G2G3 | LR | 0601010101 | 11 | TF | | SP | | | A |
| Lobed roach-like stonefly | Tallaperla lobata | G2 | LR | 0601010101 | 11 | TF | | SP | | | A |
| Purple lilliput | Toxolasma lividus | G2 | S | 0601010101 | 11 | TF | | SP | | | A |
| hellbender | Cryptobranchus alleganiensis | G3G4 | LR | 0601010201 | 30 | PTF | S | | | | A |
| Hagen's bluet | Enallagma hageni | G5 | LR | 0601010201 | 30 | PTF | | S | | | A |
| Sharphead darter | Etheostoma acu-ticeps | G3 | S | 0601010201 | 30 | PF | | ST | | | A |
| Greenfin darter | Etheostoma chloro-branchium | G4 | LR | 0601010201 | 30 | SPF | T | | | | A |
| Slabside pearly-mussel | Lexingtonia do-labelloides | G2 | S | 0601010201 | 30 | PTF | | S | | | A |
| Little-wing pearly-mussel | Pegias fabula | G1 | E | 0601010201 | 30 | PTF | | S | | | A |
| Fatlips minnow | Phenacobius crassilabrum | G3G4 | S | 0601010201 | 30 | PTF | | S | | | A |
| Tennessee dace | Phoxinus tennes-seensis | G2G3 | S | 0601010201 | 30 | PTF | S | | | | A |
| elktoe | Alasmidonta margi-nata | G4 | LR | 0601010202 | 15 | TF | | SP | | | BA |
| Black sculpin | Cottus baileyi | G4Q | S | 0601010202 | 15 | TF | | SP | | | BA |
| Spotfin chub | Cyprinella monacha | G2 | T | 0601010202 | 15 | PTF | | S | | | BA |
| Tan riffleshell | Epioblasma floren-tina walkeri | G1T1 | E | 0601010202 | 15 | TF | | SP | | | BA |

**TABLE F-1. VIABILITY OUTCOME, BY WATERSHED, FOR ALL TESLR AQUATIC SPECIES—CONT'D**

TABLE F-1. VIABILITY OUTCOME, BY WATERSHED, FOR ALL TESLR AQUATIC SPECIES - CONT'D

| Common Name | Scientific Name | G-Rank | Status[c] | Watershed | Ownership[a] Percent | Viability Outcome[b] | | | | | WCR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 | |
| Tennessee pigtoe | Fusconaia barnesiana | G2G3 | S | 0601010202 | 15 | TF | | SP | | | BA |
| Shiny pigtoe | Fusconaia cor | G1 | E | 0601010202 | 15 | TF | | SP | | | BA |
| Cracking pearly-mussel | Hemistena lata | G1 | E | 0601010202 | 15 | TF | | SP | | | BA |
| Tennessee Heelsplitter | Lasmigona holstonia | G3 | S | 0601010202 | 15 | TF | | SP | | | BA |
| Slabside pearly-mussel | Lexingtonia dolabelloides | G2 | S | 0601010202 | 15 | TF | | SP | | | BA |
| Black sandshell | Ligumia recta | G5 | LR | 0601010202 | 15 | TF | | SP | | | BA |
| Mirror shiner | Notropis spectruculus | G5 | LR | 0601010202 | 15 | TF | | SP | | | BA |
| Little-wing pearly-mussel | Pegias fabula | G1 | E | 0601010202 | 15 | TF | | SP | | | BA |
| Longhead darter | Percina macrocephala | G3 | S | 0601010202 | 15 | F | | SPT | | | BA |
| Tennessee dace | Phoxinus tennesseensis | G2G3 | S | 0601010202 | 15 | PTF | | S | | | BA |
| Tennessee club-shell | Pleurobema oviforme | G3 | S | 0601010202 | 15 | TF | | SP | | | BA |
| Fluted kidneyshell | Ptychobranchus subtentum | G2G3 | LR | 0601010202 | 15 | TF | | SP | | | BA |
| Slippershell mussel | Alasmidonta viridis | G4G5 | LR | 0601020504 | 18 | PTF | | S | | | BA |
| Fanshell | Cyprogenia stegaria | G1 | E | 0601020504 | 18 | PTF | | S | | | BA |
| Elephant ear | Elliptio crassidens | G5 | LR | 0601020504 | 18 | PTF | | S | | | BA |
| Cumberlandian combshell | Epioblasma brevidens | G1 | E | 0601020504 | 18 | PTF | | S | | | BA |
| Oyster mussel | Epioblasma capsaeformis | G1 | E | 0601020504 | 18 | PTF | | S | | | BA |
| Green-blossom pearlymussel | Epioblasma torulosa gubernaculum | G2TX | EX | 0601020504 | 18 | PTF | | S | | | BA |
| Snuffbox | Epioblasma triquetra | G3 | S | 0601020504 | 18 | PTF | | S | | | BA |
| Tippecanoe darter | Etheostoma tippecanoe | G3 | S | 0601020504 | 18 | PTF | | S | | | BA |
| Tennessee pigtoe | Fusconaia barnesiana | G2G3 | S | 0601020504 | 18 | PTF | | S | | | BA |
| Shiny pigtoe | Fusconaia cor | G1 | E | 0601020504 | 18 | PTF | | S | | | BA |
| Fine-rayed pigtoe | Fusconaia cuneolus | G1 | E | 0601020504 | 18 | PTF | | S | | | BA |
| Cracking pearly-mussel | Hemistena lata | G1 | E | 0601020504 | 18 | PTF | | S | | | BA |

| Common Name | Scientific Name | G-Rank | Status[c] | Watershed | Ownership[a] Percent | Viability Outcome[b] | | | | | WCR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 | |
| Spiny riversnail | Io fluvialis | G2 | S | 0601020504 | 18 | SPTF | | | | | BA |
| Pink mucket pearlymussel | Lampsilis abrupta | G2 | EX | 0601020504 | 18 | PTF | | S | | | BA |
| Birdwing pearlymussel | Lemiox rimosus | G1 | E | 0601020504 | 18 | PTF | | S | | | BA |
| Fragile papershell | Leptodea fragilis | G5 | LR | 0601020504 | 18 | PTF | | S | | | BA |
| Slabside pearlymussel | Lexingtonia dolabelloides | G2 | C | 0601020504 | 18 | PTF | | S | | | BA |
| Black sandshell | Ligumia recta | G5 | LR | 0601020504 | 18 | PTF | | S | | | BA |
| Popeye shiner | Notropis ariommus | G3 | S | 0601020504 | 18 | PTF | | S | | | BA |
| Emerald shiner | Notropis atherinoides | G5 | LR | 0601020504 | 18 | SPTF | | | | | BA |
| Mirror shiner | Notropis spectruculus | G5 | LR | 0601020504 | 18 | PTF | | S | | | BA |
| Sheepnose | Plethobasus cyphyus | G3 | S | 0601020504 | 18 | PTF | | S | | | BA |
| Tennessee clubshell | Pleurobema oviforme | G3 | S | 0601020504 | 18 | PTF | | S | | | BA |
| Rough rabbitsfoot | Quadrula cylindrica strigillata | G3T3 | E | 0601020504 | 18 | PTF | | S | | | BA |
| Pimpleback | Quadrula pustulosa | G5 | LR | 0601020504 | 18 | PTF | | S | | | BA |
| Appalachian monkeyface pearlymussel | Quadrula sparsa | G1 | E | 0601020504 | 18 | PTF | | S | | | BA |
| Non T/E/S Spp. | Temperature Sensitive | | | 0601020504 | 18 | T | | | | | BA |
| Deertoe | Truncilla truncata | G5 | LR | 0601020504 | 18 | PTF | | S | | | BA |
| elktoe | Alasmidonta marginata | G4 | LR | 0601020505 | 9 | TF | | SP | | | BA |
| Western sand darter | Ammocrypta clara | G3 | S | 0601020505 | 9 | TF | | SP | | | BA |
| Spectaclecase | Cumberlandia monodonta | G2G3 | S | 0601020505 | 9 | TF | | SP | | | BA |
| Steelcolor shiner | Cyprinella whipplei | G5 | LR | 0601020505 | 9 | PTF | | S | | | BA |
| Fanshell | Cyprogenia stegaria | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Dromedary pearlymussel | Dromus dromas | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Elephant ear | Elliptio crassidens | G5 | LR | 0601020505 | 9 | TF | | SP | | | BA |

**TABLE F-1. VIABILITY OUTCOME, BY WATERSHED, FOR ALL TESLR AQUATIC SPECIES - CONT'D**

TABLE F-1. VIABILITY OUTCOME, BY WATERSHED, FOR ALL TESLR AQUATIC SPECIES - CONT'D

| Common Name | Scientific Name | G-Rank | Status[c] | Watershed | Ownership[a] Percent | Viability Outcome[b] | | | | | WCR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 | |
| Cumberlandian combshell | Epioblasma brevidens | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Oyster mussel | Epioblasma capsaeformis | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Green-blossom pearlymussel | Epioblasma torulosa gubernaculum | G2TX | EX | 0601020505 | 9 | TF | | SP | | | BA |
| Snuffbox | Epioblasma triquetra | G3 | S | 0601020505 | 9 | TF | | SP | | | BA |
| Slender chub | Erimystax cahni | G1 | T | 0601020505 | 9 | TF | | SP | | | BA |
| Duskytail darter | Etheostoma percnurum | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Tippecanoe darter | Etheostoma tippecanoe | G3 | S | 0601020505 | 9 | TF | | SP | | | BA |
| Tennessee pigtoe | Fusconaia barnesiana | G2G3 | S | 0601020505 | 9 | TF | | SP | | | BA |
| Shiny pigtoe | Fusconaia cor | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Fine-rayed pigtoe | Fusconaia cuneolus | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Cracking pearlymussel | Hemistena lata | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Mountain brook lamprey | Ichthyomyzon greeleyi | G3G4 | S | 0601020505 | 9 | STF | | P | | | BA |
| Spiny riversnail | Io fluvialis | G2 | S | 0601020505 | 9 | STF | | P | | | BA |
| Tennessee Heelsplitter | Lasmigona holstonia | G3 | S | 0601020505 | 9 | TF | | SP | | | BA |
| Birdwing pearlymussel | Lemiox rimosus | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Fragile papershell | Leptodea fragilis | G5 | LR | 0601020505 | 9 | TF | | SP | | | BA |
| Slabside pearlymussel | Lexingtonia dolabelloides | G2 | S | 0601020505 | 9 | TF | | SP | | | BA |
| Black sandshell | Ligumia recta | G5 | LR | 0601020505 | 9 | TF | | SP | | | BA |
| Emerald shiner | Notropis atherinoides | G5 | LR | 0601020505 | 9 | STF | | P | | | BA |
| Mirror shiner | Notropis spectruculus | G5 | LR | 0601020505 | 9 | TF | | SP | | | BA |
| Blotchside logperch | Percina burtoni | G2 | S | 0601020505 | 9 | TF | | SP | | | BA |
| Sheepnose | Plethobasus cyphyus | G3 | S | 0601020505 | 9 | TF | | SP | | | BA |
| Ohio river pigtoe | Pleurobema cordatum | G3 | S | 0601020505 | 9 | TF | | SP | | | BA |
| Rough pigtoe | Pleurobema plenum | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Pyramid pigtoe | Pleurobema rubrum | G2 | S | 0601020505 | 9 | TF | | SP | | | BA |

| Common Name | Scientific Name | G-Rank | Status[c] | Watershed | Ownership[a] Percent | Viability Outcome[b] | | | | | WCR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 | |
| Fluted kidney-shell | Ptychobranchus subtentum | G2G3 | LR | 0601020505 | 9 | TF | | SP | | | BA |
| Rough rabbits-foot | Quadrula cylin-drica strigillata | G3T3 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Cumberland monkeyface pearlymussel | Quadrula interme-dia | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Pimpleback | Quadrula pustu-losa | G5 | LR | 0601020505 | 9 | TF | | SP | | | BA |
| Appalachian monkeyface pearlymussel | Quadrula sparsa | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Deertoe | Truncilla truncata | G5 | LR | 0601020505 | 9 | TF | | SP | | | BA |
| Purple bean | Villosa perpur-purea | G1 | E | 0601020505 | 9 | TF | | SP | | | BA |
| Cumberland bean | Villosa trabalis | G2 | EX | 0601020505 | 9 | TF | | SP | | | BA |
| elktoe | Alasmidonta mar-ginata | G4 | LR | 0601020601 | 9 | T | | SPF | | | BA |
| comet darner | Anax longipes | G5 | LR | 0601020601 | 9 | T | | SPF | | | BA |
| A crayfish | Cambarus vetera-nus | G3G4 | LR | 0601020601 | 9 | T | | SPF | | | BA |
| Spiny riversnail | Io fluvialis | G2 | S | 0601020601 | 9 | ST | | PF | | | BA |
| Tennessee Heelsplitter | Lasmigona holsto-nia | G3 | S | 0601020601 | 9 | T | | SPF | | | BA |
| Fragile paper-shell | Leptodea fragilis | G5 | LR | 0601020601 | 9 | T | | SPF | | | BA |
| Popeye shiner | Notropis ariom-mus | G3 | S | 0601020601 | 9 | T | | SPF | | | BA |
| Blackside dace | Phoxinus cumber-landensis | G2G2 | T | 0601020601 | 9 | ST | | PF | | | BA |
| Rough rabbits-foot | Quadrula cylin-drica strigillata | G3T3 | E | 0601020601 | 9 | T | | SPF | | | BA |
| Yellowfin mad-tom | Noturus flavipinnis | G1 | T | | | | | | | | |

TABLE F-1. VIABILITY OUTCOME, BY WATERSHED, FOR ALL TESLR AQUATIC SPECIES

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# INDEX

APPENDIX G

Sections and Subsections within each Chapter are conveniently listed in the sidebar located on the outside margin of each page. This provides the reader a handy index to quickly search the paper version of this Environmental Impact Statement.

SIDEBAR INDEX

# SIDEBAR INDEX—>

For a more detailed search of particular words or phrases, this document is also available on CD-Rom and the internet at <www.southernregion.fs.fed.us/gwj/forestplan> where it can easily be searched electronically.

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# RECREATION OPPORTUNITY SPECTRUM

APPENDIX I

| Characteristics | Recreation Opportunity Spectrum Experiences | | | | | |
|---|---|---|---|---|---|---|
| | **Primitive (P)** | **Semi-Primitive Non-Motorized (SPNM)** | **Semi-Primitive Motorized (SPM)** | **Semi-Primitive 2 (SP2)** | **Roaded Natural** | **Rural** |
| **Access** | Cross-country travel. Limited trail access. Non-motorized, non-mechanized travel only. | Non-motorized trails or cross country travel only. Primitive roads to access points, trailheads. | Motorized trails, primitive roads (level D). Roads to access points, trailheads. | Predominately Service level D roads. Open road density less than 0.5 miles per 1000 acres. | All service level roads from A to D. Easy access. | Full access. |
| **Remoteness** | Highest expectation of solitude and experiencing isolation from sounds of others. Out of sight and sound of human activity. More than 1 and 1/2 hr. walk. | Fairly high expectation of solitude and experiencing isolation from sounds of others. More than 1/2 hr. walk from any motorized travel. | Moderate expectation of solitude and some expectation of experiencing isolation from sights of others. More than 1/2 hr. walk from roads open to passenger cars. | Moderate expectation of solitude and some expectation of experiencing isolation from sights of others. | Moderate to high expectation of evidence of sights and sounds of others. | Moderate to High concentration of users and large number of people are within area and nearby with evidence of others being dominant. |
| **Size** | 5,000+ acres | 2,500+ acres | 2,500+ acres | No criteria. | No criteria. | No criteria. |
| **Social Encounters** | No expected contact with other individuals. | Few contacts. | Few contacts. | Low contact on roads, low contact on trails. | Moderate contact on roads, low contact on trails, moderate to high contact in developed sites, or near rivers, lakes, and shores. | Moderate to high contact on roads, moderate contact on trails, high contact in developed sites, or near rivers, lakes, and shores. |
| **Recreation Facilities / Site Management** | No facilities for user comfort. Rustic, rudimentary facilities for site protection. Use undimensioned native materials. | Minimum facilities. Rustic, rudimentary facilities for site protection. Use undimensioned native materials. | Minimum facilities. Rustic, rudimentary facilities for site protection. Use undimensioned native materials. | Minimum facilities. Rustic, rudimentary facilities for site protection. Use undimensioned native materials. | Rustic facilities providing some comfort for user, as well as site protection. | Rustic facilities designed both for user comfort/ convenience and site protection. Synthetic but harmonious materials may be |

| Recreation Opportunity Spectrum Experiences | | | | | | |
|---|---|---|---|---|---|---|
| **Characteristics** | **Primitive (P)** | **Semi-Primitive Non-Motorized (SPNM)** | **Semi-Primitive Motorized (SPM)** | **Semi-Primitive 2 (SP2)** | **Roaded Natural** | **Rural** |
| **Vistor Management** | Low regimentation. No on-site controls or information facilities. Regulations on human waste disposal. | Subtle on-site regimentation and controls. Very limited informational facilities. Regulations on human waste disposal. | Subtle on-site regimentation and controls. Very limited informational facilities. Regulations on human waste disposal and motorized trail use. | Subtle on-site regimentation and controls. Very limited informational facilities. Regulations on human waste disposal and motorized trail use. | On site controls are noticeable but harmonize with natural environments. Simple information facilities. | On site controls are noticeable but harmonize with natural environments. Simple information facilities. |
| | Self-reliance through appliance of outdoor skills in an environment that offers a high degree of challenge and risk. | Self-reliance through appliance of outdoor skills in an environment that offers a moderate degree of challenge and risk. | Self-reliance through appliance of outdoor skills in an environment that offers a moderate degree of challenge and risk. | Opportunities for challenge in a natural environment but less expectation of risk. | Opportunities for challenge in a natural environment but less expectation of risk. | Challenge and risk are less important. |
| **Naturalness** | Very High. Unmodified natural environment. Vegetation management only for public safety, T&E species, insect control, and trail construction and maintenance. | High. Setting may have subtle modifications that would be noticed but not draw the attention of an observer. | High. Setting may have subtle modifications that would be noticed but not draw the attention of an observer. | Moderate. Settings may have modifications which range from being noticed to strongly dominant. Alterations would remain unnoticed or visually subordinate from sensitive travel routes. | Moderate. Settings may have modifications which range from being noticed to strongly dominant. Alterations would remain unnoticed or visually subordinate from sensitive travel routes. | Moderate. Natural setting may be culturally modified. May include Pastoral, agricultural intensively managed wildland resource landscapes or utility corridors . |
| **Camping** | No facilities developed. Low impact camping. | Minimum facilities, if any, provided. | Minimum facilities, if any, provided. Group hunter camps. | Minimum facilities, if any, provided. Group hunter camps. | Facilities defined. Variety of camping experiences. | Facilities highly developed. |
| **Day Use** | No facilities developed. | Minimum facilities, if any, provided. | Minimum facilities, if any, provided. | Minimum facilities, if any, provided. | Sites and areas defined. Overlooks, observation sites, day hike to attractions. | Sites and areas defined. Beaches, picnic areas, overlooks, observation sites, day hike to |

| Recreation Opportunity Spectrum Experiences | | | | | | |
|---|---|---|---|---|---|---|
| **Characteristics** | **Primitive (P)** | **Semi-Primitive Non-Motorized (SPNM)** | **Semi-Primitive Motorized (SPM)** | **Semi-Primitive 2 (SP2)** | **Roaded Natural** | **Rural** |
| **Hunting** | Public land open to hunting. | Public land open to hunting. | Public land open to hunting. | Public land open to hunting. | Public land open to hunting. | Public land open to hunting |
| **Fishing** | Trout streams and trail intersections. | Trout streams and trail intersections. | Trout streams and trail intersections. | Trout streams and trail intersections. | Stream or river with roads crossing or parallel. | Stream or river with roads crossing or parallel. Piers. |
| **Driving (viewing scenery)** | NA | NA | Motorized trails and primitive roads. | Public land/roads. | Public land/roads. | Public land/roads, scenic byways. |
| **Nature Study** | Self directed. | Self directed. | Self directed. | | Self directed. | Interpretive trails. |
| **Cultural Resource Study** | Self directed. | Self directed. | Self directed. | Self directed. | Sites open to public. | Sites open to public. |
| **Motorized Boating** | None. | None. | Few impoundments. | Few impoundments. | Lakes | Lakes |
| **Non-motorized Boating** | Rivers | Rivers | Rivers, Lakes | Rivers, Lakes | Rivers, Lakes | Rivers, Lakes |
| **Motorized Trail Use** | No mechanical use (bikes) except wheel chairs. | Mechanical use (bikes) allowed. | Mechanical use (bikes) allowed. Designated OHV trails. | Mechanical use (bikes) allowed. Designated OHV trails. | Mechanical use (bikes) allowed. Designated OHV trails. | Mechanical use (bikes) allowed. |
| **Non-motorized Trail Use** | Hiking, horseback. | Hiking, horseback, mountain bikes. | Hiking, horseback, mountain bikes. | Hiking, horseback, mountain bikes. | Hiking, horseback, mountain bikes. | Interpretive trails. Fully accessible trails. Trails to major attractions. |
| **Winter Sports** | Occasional cross-country skiing. | Occasional cross-country skiing. | Occasional cross-country skiing, snowmobiling. | Occasional cross-country skiing, snowmobiling. | Occasional cross-country skiing, snowmobiling. | Occasional cross-country skiing. |

| Recreation Opportunity Spectrum Experiences | | | | | | |
|---|---|---|---|---|---|---|
| **Characteristics** | **Primitive (P)** | **Semi-Primitive Non-Motorized (SPNM)** | **Semi-Primitive Motorized (SPM)** | **Semi-Primitive 2 (SP2)** | **Roaded Natural** | **Rural** |
| **Interpretation** | Self discovery. No on site facilities or on site interpretation. | Self discovery. No on site facilities or on site interpretation. | Self discovery. No on site facilities or on site interpretation. | Self discovery. No on site facilities or on site interpretation. | Self discovery augmented by brochures. On site interpretation such as interpretive trails, overlooks, simple wayside exhibits. Guided walks as well as unplanned encounters. Simple contact stations. | Self discovery and on site interpretation such as interpretive trails, overlooks, amphitheaters, kiosks, simple wayside exhibits, boardwalks. Guided walks as well as unplanned encounters. Simple contact stations. |
| **Roads** | No roads allowed. May be present but only for special uses or access for private inholdings. | No roads for public use. No new permanent or temporary road construction or reconstruction. Roads maintained as trails. | Primitive roads open for recreational or administrative use only. No new permanent or temporary road construction or reconstruction. Roads maintained as trails. | No new permanent road construction. Temporary roads and road reconstruction allowed as long as adjacent SPNM and SPM areas are not affected. | No limitations. | No limitations. |

# APPENDIX J TABLE OF CONTENTS

# AGENCY RESPONSES TO PUBLIC COMMENTS

APPENDIX J



## INTRODUCTION

The following is a summary of public comment received regarding the Jefferson National Forest Revised Land and Resource Management Plan (RLRMP). The comment period was March 14, 2003 to July 3, 2003. Across the Southern Appalachians, we received 12,571 responses, including letters, emails, and faxes. These responses have been analyzed using a process called content analysis, described below.

Although this summary and accompanying list of public concerns attempts to capture the full range of public issues and concerns, it should be used with caution. Respondents are self-selected; therefore their comments do not necessarily represent the sentiments of the public as a whole. However, these reports do attempt to provide fair representation of the wide range of views submitted. In considering these views, it is important for citizens and decision makers to understand that this process makes no attempt to treat input as if it were a vote. Instead, the content analysis process ensures that every comment is considered at some point in the decision process.

## CONTENT ANALYSIS PROCESS

Content analysis is a method of eliciting meanings, ideas, and other information from written text, pictures, or audio or video messages. A particular method of content analysis has been developed by the Content Analysis Team (CAT), a specialized Forest Service unit, for analyzing public comment on Federal land and resource management agency projects and proposals. This method employs both qualitative and quantitative approaches. It is a systematic process designed to provide specific demographic information, a mailing list of respondents, identify individual comments by topic in each response, evaluate similar comments from different responses, and summarize like comments as specific concern statements. The process also provides a relational database capable of reporting various types of information while linking comments to original letters.

Through the content analysis process, CAT analysts strive to identify all relevant issues, not just those represented by the majority of respondents. The breadth, depth, and rationale of each comment are especially important. CAT analysts organize the concern statements to facilitate systematic review and response by decision makers.

## APPENDIX OVERVIEW

The Appendix begins with background information on all Southern Appalachian Forest Plan Revisions and provides a brief overview of public comment on the Jefferson RLRMP. Following this summary is a formal list of public concern statements identified during the content analysis process, organized topically. Process, Planning, Policies, and Laws, includes comments on general planning considerations related to the forest plan revision. Included in the planning section are topics such as the role of interest groups, public involvement considerations, agency organization and funding, and the relation of the forest plan to other agency plans and directives. Alternatives, includes comments regarding the alternatives detailed in the Draft Environmental Impact Statement (DEIS)

and suggestions that respondents might offer for new alternatives. Environment, includes comments concerning environmental issues including soils, air quality, noise, water resources, wildlife, fisheries, and vegetation. Transportation, includes comments relating to the transportation infrastructure on National Forest System lands, including road building, maintenance, and decommissioning. Recreation, includes comments addressing the various recreational issues and opportunities on National Forest System lands. Special Designation, includes comments relating to special designations on the Forest including roadless areas, wilderness areas, and wild and scenic river designation. Natural Resources Management, includes comments relating to the various natural resources and resource management related activities that take place on National Forest System lands including timber harvest, fire management, mineral resources, and utility facilities; and comments focusing on landownership, land exchanges, and rights-of way issues. Finally, the Social and Economic Values section includes comments relating to the social and economic values provided by and impacted by National Forest System lands.

Each formal statement of concern is accompanied by one or more sample comments which provide respondents' specific perspectives and rationales regarding that concern. For each sample comment a letter number is provided, enabling the reader to track and review the original response, if necessary. This list is intended to capture the full range of concerns regarding this proposal; however, it is not intended to obviate the need for the team to review the database report and original responses. Its primary purpose is to provide a topical review of voluminous comment in a format that aids in careful consideration and agency response.

# PROJECT BACKGROUND

The Forest and Rangeland Renewable Resources Planning Act, as amended by the National Forest Management Act, requires that each national forest be managed under a published forest plan that is reviewed and updated every 10 to 15 years, or earlier if conditions change significantly.

For preparation of a new forest plan or revision of an existing plan, an Analysis of the Management Situation is prepared to assess conditions, supply, and demand for forest resources. Public input is used to help identify significant environmental issues that should be addressed in the planning process. Alternative management strategies that are responsive to the issues developed and the anticipated environmental consequences of each alternative are documented in an environmental impact statement.

After the alternatives are developed, a Draft Environmental Impact Statement (DEIS) is prepared and circulated for public review and comment. The Forest Service identifies in the DEIS the alternative that is the agency's preferred alternative. A Proposed Revised Forest Plan that reflects the preferred alternative is prepared and circulated along with the DEIS.

Public comments received on the DEIS and Proposed Revised Forest Plan are used to make any necessary changes and help guide the preparation of the Final EIS and Revised Forest Plan.

This general overview includes public comments received on the DEIS and Proposed RLRMPs for the Alabama, Chattahoochee, Cherokee, Jefferson, and Sumter National Forests.

# GENERAL OVERVIEW OF PUBLIC COMMENT

Public comment on the proposed rule for the Southern Appalachian Forest Plan Revisions is far-reaching, often highly detailed, and represents a wide range of values and perspectives. Given the wide range of values and perspectives, only broad generalizations are possible. The Process, Planning, and Policy Topic contains comments associated with the forest plan revision and the relationship between the plan revisions and current agency policies, directives, and laws. Individuals commenting on the Alternatives Topic offer critiques of the alternatives analyzed by the agency as well as suggestions for new alternatives. In the Environment Topic, commenters offer a variety of views on the environmental values of National Forest System lands and how the agency can best protect these resources. The Transportation Topic contains comments from some respondents who advocate the decommissioning of existing roads and the prohibition of new road building on National Forest System. The section also has comments from those who point out the importance of the Forest Service transportation system and recommend that the agency continue to provide and improve on this infrastructure. Comments relating to the Recreation Topic are quite varied. Several recreational activities on National Forest System lands including ATV use, mountain biking, equestrian use, and boating received attention and considerable comment from the public. One of the more dominating themes in the Special Designations Topic is the management and recommendations of roadless and wilderness areas on National Forest System lands. A broad range of comment was received for Natural Resource Management including topics such as timber harvest, old growth, early successional habitat, and forest health management. Under the Socioeconomic Topic, Some commenters say that the Forest Service should do more to assist local communities and economies. Other writers contend that National Forest System lands should be managed in a manner that provides aesthetic and quality of life benefits to individuals that live in close proximity to these areas.

# OVERVIEW OF COMMENT ON SPECIFIC TOPICS

Following is a summary of public comment on specific topics regarding the Southern Appalachian Forest Plan Revisions. These topics include Process, Planning, Policies, Alternatives, Environmental Values, Transportation, Recreation, Special Designations and Lands, Natural Resources Management, and Social and Economic Values.

## PROCESS, PLANNING, POLICIES, AND LAWS

Comments relating to process, planning, policies, and laws are quite varied. In terms of decisionmaking authority, some writers say that the Forest Service should ensure cooperation with other Federal agencies including the Tennessee Valley Authority, Army Corps of Engineers, Army National Guard, and the U.S. Fish and Wildlife Service. Some respondents suggest that the Forest Service should develop better relationships with local governments, while others write that the agency should not allow state agencies to control National Forest System lands. According to other commenters, the Forest Service should better collaborate with interested parties to resolve various National Forest System lands issues including the management of the urban-wildland interface.

The role of interest groups, both environmental groups and industry groups, sparked some public comment. While some respondents say that environmental groups have too much influence on National Forest System land decisions, others write that it is industry groups that are unduly influencing agency decisions. Similarly, some respondents say that it is science, not the agendas of special interest groups that should guide the new forest plans. Some respondents recommend that the Forest Service provide meaningful opportunities

**OVERVIEW OF COMMENT ON SPECIFIC TOPICS**

for citizen involvement in National Forest System land decisions. Others say that the agency should utilize local citizens to provide guidance on National Forest System lands management issues.

A considerable volume of comment was received on the forest plan revision and the use of public comment. Some write that the Forest Service should have better involved the public in the forest plan revision process. Some specifically request that the agency explain why drastic changes were made to the forest plan without public input. Other respondents, though, say that the Forest Service should not overemphasize the role of the public input in the planning process. A number of comments address the public meetings that were held during the plan revision process. Some writers say that the public meetings that were held favored environmental interests and were dominated by these groups.

Commenters also responded to the length of the comment period. According to these writers, the length of the comment period was inadequate and a number of extensions, ranging from 30 days to 90 days, were recommended.

Some comment was received on various aspects of the agency's funding and staffing, and the agency's education programs. According to some writers, the Forest Service should ensure that appropriate funding is in place to implement the revised forest plans. Other writers state that the forest plan should reflect staffing and fiscal realities. Some respondents suggest that the Forest Service should better educate the public on a number of natural resources issues, including programs that explain to the public what is needed for a healthy forest.

A number of public comments address technical or editorial issues. Some writers state that the maps included with the revised forest plans are either insufficient or difficult to read. Several respondents include specific, detailed comments on editorial changes that they believe need to be made in the revised forest plan and Draft EIS.

Some commenters say that the Forest Service should ensure consistency between the forest plan and a number of laws, policies, and directives. According to some respondents, the Forest Service should ensure that the forest plan is consistent with natural and regional guidance, the agency's Natural Resource Agenda, the Healthy Forests Initiative, and the Planning Rule. Some writers state that the Forest Service should ensure that regional consistency takes precedent over the autonomy of individual forest plans, while others say that the agency should develop specific, specialized forest plans for each of the forests.

A number of comments address legal aspects of the revised forest plans. Some writers say that the plans are in violation of NEPA because they do not adequately analyze cumulative impacts or all viable alternatives, they do not disclose opposing evidence and analysis, they rely on the content analysis team to analyze public comment, and they do not provide a fair and full discussion of significant information. Similarly, some respondents write that the revised forest plans violate the National Forest Management Act by not fully involving the public in the planning process, by failing to model non-timber outcomes in the alternatives, and by failing to disclose records and studies relevant to the revision process. Other writers state that the revised forest plans violate the Data Quality Act, the Weeks Act of 1911, the Organic Act of 1897, and the Eastern Wilderness Act.

## ALTERNATIVES

A number of comments were received on the alternatives section of the Draft EIS. These comments can be divided into two broad groups; those that request new alternatives and

those that offer specific comments on the proposed alternatives.

A number of comments recommend that the Forest Service develop and analyze a new alternative that prohibits commercial logging. Similarly, some respondents ask that the Forest Service reinstate and further analyze Alternative C, the alternative that emphasizes resource management with minimal human intervention. Other commenters suggest a wide range of possible alternatives that deserve additional analysis from the agency, including alternatives that have a wider range of wilderness and roadless area recommendations, alternatives with a range of allocations for old growth, an alternative that decreases or offers a moderate increase in areas identified for prescribed burns, and alternatives that provide a reasonable range of options for managing ATVs, trails, and high priority watersheds. Some respondents also ask that the Forest Service reinstate and analyze Alternative H.

Many respondents comment on the individual alternatives analyzed by the Forest Service. Some of these comments request that the Forest Service implement or not implement various alternatives with no reasons given. Other commenters provide justifications for their preferred alternative, while still other respondents offer various modifications and critiques of the alternatives.

Some writers encourage the implementation of Alternative A as this alternative will benefit local economies and schools. Other respondents state that Alternative B allows too much timber harvest to be a viable alternative. Comment on Alterative D includes assertions from some respondents who say that the alternative supports loggers in the state, will provide a healthy forest, and provides the best opportunity to promote forest health and species diversity and should, therefore, be implemented. Other commenters state that the alternative relies too heavily on timber harvest and should not be implemented.

Some writers say that Alternative E was not given consideration and should be better analyzed by the agency. Alternative F is the choice of some respondents as this alternative, according to these writers, best accomplishes multiple use goals. Many respondents comment on Alternative G. While some say that the alternative will protect National Forest System lands and species and should, therefore, be implemented, other commenters say that the alternative does not emphasize the important role of the transportation system on National Forest System land and should not be implemented. A number of modifications are suggested for the alternative including a roads analysis that emphasizes the decommissioning of unnecessary roads, a comprehensive mapping of old growth areas, and the assignment of various management prescriptions to various areas. Other writers say that Alternative G should be modified to increase the allowable sale quantity.

A number of respondents comment on Alternative I, the preferred alternative. Some state that the Forest Service should implement the alternative as it is science based and provides an appropriate balance of multiple uses, it provides the greatest amount of early successional habitat, and it provides opportunities for a variety of lifestyles while retaining the quality of National Forest System lands. Other respondents recommend that the alternative not be implemented and offer a number of reasons for this view including the contention that Alternative I violates a number of environmental laws, ignores research by a Cherokee National Forest employee, allows too much timber harvest, adversely affects rare communities, and does not provide adequate opportunities for solitude , spiritual renewal, or adventure. Some writers offer modifications that they say are appropriate for Alternative I. Some of the recommended modifications include protecting all roadless areas identified in the Southern Appalachian Assessment, dedicating less land to mineral leasing, increasing management prescriptions that emphasize timber harvest, and adding additional acreage for ruffed grouse habitat management.

**OVERVIEW OF COMMENT ON SPECIFIC TOPICS**

Some ask that the Forest Service explain why the preferred alternative has changed so much in the last year. Likewise, other writers would like the agency to justify the reduction of wilderness recommendations between the current Alternative I and the draft Alternative I released six months ago. According to another respondent, the Forest Service should ensure that American Electric Power's recently authorized 765kv transmission line is recognized in Alternative I.

## ENVIRONMENT

A number of respondents urge the Forest Service to protect National Forest System lands and the environment. These writers say that the American public supports the protection of the environment and that a clean environment will provide recreation, aesthetic, and solitude benefits.

Some respondents encourage the Forest Service to prepare quality and detailed soil inventories, baseline conditions, and site-specific analyses and mitigation measures. Other writers say that the Forest Service should develop standards, guidelines, and monitoring requirements for soil conditions and quality. Some commenters state that the Forest Service should protect caves on National Forest System lands, including those within the Skydusky Hollow region.

A number of respondents assert that the Forest Service should protect air and water quality. Within water quality, a number of comments were received that urge the Forest Service to protect watersheds. Some writers, for example, say that the Forest Service should conduct a full cumulative effects analysis on watersheds rather than rely on the results and conclusions from the watershed health index and associated analyses. A number of specific watersheds are mentioned by writers as being worthy of protection. Commenters also request that the Forest Service better protect riparian areas and wetlands. Comments for these resources range from general policy and management statement suggestions to specific comments related to riparian and watershed related management prescriptions.

Many comments were received on wildlife and wildlife habitat. Some respondents encourage the Forest Service to protect wildlife and wildlife habitat. A number of writers specifically mention various threatened, endangered, and sensitive species that need protection. According to some of these writers, the Forest Service should conduct full surveys and inventories of species and their habitats sufficient to ensure the viability of the species. Likewise, a number of commenters say that the Forest Service should better analyze management indicator species. Some say that common species and community level monitoring should not be used in place of management indicator species. Game species are also prominently mentioned by respondents as wildlife species that are in need of close attention by the Forest Service. Some respondents encourage the agency to expand the application of various management prescriptions that could be utilized to protect these species.

Forested vegetation comments are included in this topic with some commenters stating that the Forest Service should acknowledge that the six forest community types used in the forest plan revision are generalizations of forest types from Southern Appalachian old-growth guidance, Other commenters include various threatened, endangered, and sensitive plant species that they believe the Forest Service should actively work to protect.

The section also includes comments on late successional/old growth concerns. Some respondents say that the Forest Service should protect old growth forests and should better map and inventory these areas. Some of these writers say that the Forest Service

should accurately describe the historic dynamics of the Southern Appalachian forests as naturally uneven-aged. In contrast, some respondents did not agree with this perspective and ask that the Forest Service not provide additional protections for old growth areas.

A number of commenters encourage the Forest Service to expand early successional habitat. One of the most common reasons for his request is the positive impact increased early successional habitat will have on wildlife, particularly game species. Other writers, however, say that the Forest Service should not increase the distribution of early successional habitat types.

In terms of forest health management, public comment ranged across a number of concerns. Some of the comment focuses on the Cherokee National Forest archaeologist's research. Some of these respondents state that the Southern Appalachian forest plan revisions do not consider the archaeologist's research and erroneously base the plans on an early successional model. According to these writers, the archaeologist's research suggests that the Southern Appalachian forests are uneven-aged forests characterized by permanent canopy types and gap-phase reproduction. These respondents say that if the archaeologist's research is incorporated into the forest plans, a different management approach should be adopted. This section also contains comments relating to insect and disease management, noxious weed management, and herbicides and pesticides.

## TRANSPORTATION

Some respondents comment that the Forest Service should provide an appropriate transportation system with a high level of road management and better access. Respondents also recommend that the agency develop the roads policy at the forest level and ensure that it is in compliance with the national roads policy.

Some writers encourage the development and enforcement of road density standards. Additionally, some suggest that road mileage be reduced to fiscally responsible levels.

The roads analysis process is an activity that several respondents would like completed. This analysis should involve the public, include temporary roads, and be incorporated into the revision process. Criteria should also be developed to determine when a project scale roads analysis is needed.

To promote hiker safety, some respondents want a significant distance between roads and trails. Some write that the use of administrative roads should be limited in order to minimize environmental impacts.

There was considerable comment concerning road construction, reconstruction, and maintenance, as well as road removal and decommissioning. While some respondents, for a number of environmental, recreational and financial reasons, recommend no new road construction, others say that road construction is necessary to facilitate timber harvests and access. Some of those opposed to new road construction write that new roads would be acceptable if they aid in emergency situations or protecting sensitive areas. Some commenters do not want Forest Service roads to be paved and others suggest that they be paved using permeable methodologies. Others note the need for increased maintenance of roads to ensure adequate access and protection of aquatic resources. Because of inadequate maintenance and negative ecological impacts, some writers recommend the removal or decommissioning of some Forest Service roads followed by land restoration.

**OVERVIEW OF COMMENT ON SPECIFIC TOPICS**

## RECREATION

Comments in the recreation section range from general comments on recreation policy or management to specific comments on recreation management prescriptions and specific types of recreational opportunities.

A number of comments sent to each forest address specific management prescriptions related to recreation and make recommendations concerning the prescriptions, specific areas of the forest, and specific types of recreation.

Some writers state that recreation is an important activity on National Forest system lands and should be better supported by the Forest Service. Other respondents address the data and analysis used to guide National Forest System lands recreation. According to some writers, the Forest Service needs to better analyze supply and demand for wilderness based recreation. Some commenters say that the Forest Service needs to collect better data on forest recreation users to ensure that agency policy is being based on accurate data.

Some specific recreation types received a number of public comments. Motorized recreation, mountain biking, equestrian activities, and boating are all recreational activities that received substantial public comment. A number of respondents, for example, comment on ATV use on National Forest System lands. Some write that certain management prescriptions should not allow ATV use. While some commenters say that ATV use is an appropriate use of National Forest System lands, others say that this activity is harmful and should be limited or prohibited. Other respondents list certain areas that they say should be off-limits to ATV use. Some writers, however, write that certain areas should be managed in a manner that supports ATV use. Several commenters mention the Cumberland/Pine Mountain area as needing an ATV trail.

A number of commenters recommend that the Forest Service continue to support and protect the Appalachian Trail. Some of these writers ask that the agency modify various management prescriptions to continue protecting the trail and surrounding area. Other respondents, however, say that the Appalachian Trail Management Prescription is overly restrictive on other forest resources and should be sparingly applied.

## SPECIAL DESIGNATIONS

Many respondents expressed a desire for increased protection of roadless areas. The reasons provided were many and include: the ecological and recreational benefits provided by roadless areas, the Ninth Circuit Court reaffirmation of the Roadless Area Conservation Rule, and to protect resources. Assigning management prescriptions that maintain roadless character, ensuring that management direction is consistent with the Roadless Area Conservation Rule, and adequately evaluating all unroaded areas were some of the ways suggested to protect roadless areas. However, some respondents were not in favor of increased protection of roadless areas. That there are currently a sufficient number of roadless areas and that roadless areas limit access were commonly cited objections to increased roadless protection. Some respondents say that the way in which roadless areas are inventoried and evaluated needs to be improved.

Like roadless areas, many commenters would like more Wilderness Areas on National Forest System land. Again, the reasons provided in favor of increased wilderness were many and varied, ranging from ecosystem services to recreation to habitat protection. Of those respondents opposed to increasing the number of Wilderness Areas; limiting access for recreation and firefighting, limiting management and monitoring options, lack of

economic benefits, and not serving biodiversity and habitat productivity were among the reasons given. Some writers ask for clarification of terms and criteria used in evaluating or recommending wilderness.

Some commenters request changes in management prescriptions, in the clarity of the language used as well as management activities allowed or not allowed within the prescriptions. Many writers also recommend changing management prescriptions for specific areas. Many respondents request Wild and Scenic River designation for specific rivers and until such recommendations can be made that those rivers should be managed with the strictest prescriptions. Some say that guidance should be provided to assist managers in protecting and evaluating rivers. Some respondents say that certain areas should be managed as Scenic Areas, Special Interest Areas, Research Natural Areas, or National Recreation Areas whereas others are not in favor of such management.

## NATURAL RESOURCES MANAGEMENT

In the Natural Resources Management section, comments vary from general recommendations on how the Forest Service should manage National Forest System lands to specific remarks on natural resource management oriented management prescriptions. Some commenters advocate a multiple use management approach including sustainable timber harvests and the provision of renewable resources. Other management philosophies mentioned by respondents include ecosystem management and adaptive management; some recommending increased monitoring and evaluation. In addition, some respondents say that the Forest Service should manage forests for the restoration of natural processes and native forest communities.

A number of comments in the section discuss timber harvest and the appropriateness of this activity on National Forest System lands. Some respondents approve of this practice and ask that it be maintained or expanded. Others contend that commercial timber harvest should be limited or prohibited on National Forest System lands for a multitude of reasons. Some commenters include comments on specific timber related management prescription and whether timber harvest should be conducted on specific areas of the Southern Appalachian forests.

Some commenters ask for additional analysis of livestock grazing and fire management on National Forest System lands. While some writers express support for prescribed burning on National Forest System lands, others do not approve of the practice on the Southern Appalachian forests as, according to these writers, evidence of cyclic burning is speculative.

There are also public comments in this section relating to mineral resource management including leaseable minerals on National Forest System lands. Some respondents comment on the siting of utility and communication infrastructure and facilities on National Forest System lands. Many of these comments are quite specific and are associated with utility related management prescriptions. Some respondents, for example, say that the Forest Service should not permit any new communication sites under the 5.B prescription and should start phasing out some existing communication facilities.

Lands and Special Uses are also discussed in this section. Some respondents say that the Forest Service should work with private land owners to enhance wildlife and recreation opportunities and respect property rights. Some recommend that the Forest Service acquire additional land. Of these, some say that this should only be done through purchases, not exchanges.

**OVERVIEW OF COMMENT ON SPECIFIC TOPICS**

## SOCIAL AND ECONOMIC VALUES

Many respondents recommend that National Forest System lands be managed for the common good of the public and maximize net public benefits. People would also like for there to be greater law enforcement to address poaching, arson, illegal boating, and illegal OHV use. Some write that the Forest Service should acknowledge the importance of National Forest System land to communities and the threats of urban sprawl.

Some commenters request the agency to do more to assist communities, both socially and economically. Some write that the mathematical modeling used to identify the most economically efficient solution to meet the goals and objectives of any alternative was inadequate. There were also concerns expressed about the SPECTRUM linear programming solution. Others recommend reconsideration of costs and benefits described in the draft plan, including non-cash benefits and externalities. The agency should also develop and incorporate into the draft plan, quantified monetary values for ecosystem services.

# PROCESS, PLANNING, POLICIES, AND LAWS

## GENERAL PLANNING ISSUES

1. **The Forest Service should establish a realistic time period for revising the forest plan.**
   While we were on a tight time frame to make changes between the Draft and Final, time was allocated to make the changes that were needed in the documents, as well as any reanalyses (such as rerunning the Spectrum model) that were needed.

2. **The Forest Service should revise and release for comment the PRLMP and DEIS before the publication of the final revised plan and EIS.**
   **To reflect the Forest Service's own records and analysis of the natural composition and dynamics of the Southern Appalachian forest ecosystem**

   The information referenced in this comment is part of the public record and, as such, is available for public review. However, all research that the RLRMP is based on does not necessarily end up in the DEIS, which is circulated for review during the comment period. See also Response #527.

3. **The Forest Service should be willing to make the needed changes to the PRLMP and EIS despite the time needed to run the various analyses**

4. **The Forest Service should be willing to make the needed changes to the PRLMP and EIS and complete the forest plan revision as soon as possible**
   Although we have moved from the Draft to Final EIS and RLRMP in an unusually short period of time, the extraordinary public involvement and collaboration that occurred prior to issuance of the Draft documents, allowed us to complete this step quickly and efficiently. Various analyses, including SPECTRUM were rerun; however changes were so minor that changes to outputs and effects were negligible.

5. **The Forest Service should analyze ecological conditions on regional private lands when assigning prescriptions.**
   We agree that the adjacency of private lands to the Forest and their development contribute to effects on national forest system lands in varying degrees. The Southern Appalachian Assessment and Southern Forest Resource Assessment were invaluable in helping us consider these effects. As we developed the RLRMP it was always with an awareness of the context of the forest and private lands.

6. **The Forest Service should ensure that the forest plan revision incorporates the ideals of "management by objectives."**
   We agree that objectives are a key component of a Forest Plan. Goals and desired condition statements describe where we want to end up, but it is the objectives that define the actions or activities needed to meet those goals and desired conditions. Sometimes there is a fine line between goals, objectives, and standards, but we have made every attempt to develop objectives that are clear, understandable, and measurable. The Forest Plan has also been organized to have goals and objectives presented together, so that one can see the objectives that are being used to show the achievement toward reaching a particular goal. As a result of your comment, we have reviewed our objectives in the PRLRMP and made changes where appropriate.

7. **Recognize that the need for change from the existing forest plans has not been shown in the PRLMP**
   The need for change is identified by the issues that need to be addressed in the planning process. These issues are identified in Chapter 1 of the EIS. The Quentin Bass material identifies one possible way of managing the National Forests, but not the only way. The other issues need to be considered and addressed. The desired conditions identified in the RLRMP are those deemed necessary to address these

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multiple issues. Also the role of the MIS is different from the way they were used in the original Forest Plans. Since the original planning process essentially used the MIS to represent all the species on the Forest, more MIS were identified. Now, MIS are viewed as only one part of the overall strategy in developing plan direction for addressing wildlife habitat needs.

**8. The Forest Service should not overly rely on the Southern Appalachian Assessment for providing information and data for the DEIS**

The Southern Appalachian Assessment was just one of many sources of information used in the development of the DEIS. It was primarily used to help define the issues to be addressed in the plan, it provided some of the inventories used in the analysis (such as roadless areas and the preliminary inventory of possible old growth forests), it provided some resource information on other (non-NFS) landowners, and it provided information within a regional context for the effects analysis.

**9. The Forest Service should implement an environmental management system.**

The Plan, in combination with other agency systems currently in place, meets the EMS system (ISO 14001) with its elements to plan, do, check, and act to ensure that environmental matters are identified, controlled, and monitored. Yet, EMS is nothing more than an organized and structured system for accomplishing a company's work. Thus, such a system and its implementation are outside the scope of revision effort.

## PUBLIC INVOLVEMENT

### Public Involvement/ Agency Communication Efforts/ Comment

**10. The Forest Service should have better involved the public in the forest plan revision process.**

**11. The Forest Service should provide meaningful opportunities for citizen involvement in National Forest System lands management decisions.**

Appendix A of the EIS provides a summary of the extraordinary public involvement during the planning process from 1993 through the DEIS and PRLRMP. There have been numerous public meetings and our IDT (interdisciplinary team) meetings were open to interested citizens. There was also the opportunity for the public to provide comments during the formal comment period for the DEIS and PRLRMP. People's views, desires, and concerns regarding the management of the Forest were considered in developing the direction found in the Final RLRMP.

**12. The Forest Service should explain how scoping comments were used to develop a list of significant issues.**

On the Jefferson National Forest, scoping comments from both the 1993 and 1996 scoping periods, as well as other information received in between these formal comment periods were used in developing the significant issues used throughout the planning process. As a matter of fact, it was public comment in 1993 that led us to postpone work on the Forest Plan while we completed the Southern Appalachian Assessment and organized the Forests of the Southern Appalachians to work together.

**13. The Forest Service should make available to the public the documentation that supports the analysis of the PRLMP.**

Many documents from the Process Record for the PRLRMP are available on the internet. Others may be viewed by visiting the Forest Supervisor's Office in Roanoke. The commenter personally spent several days with various members of the Interdisciplinary Team reviewing our records.

**14. The Forest Service should have better integrated public input from the August, 2002 public**

**meetings into the preferred alternative.**
We carefully discussed and considered all information presented to us at the August 2002 public meetings and made appropriate changes. Considering the fact that almost 160 public meetings were held prior to this one meeting, very little new information that we had not already considered was brought forward at this meeting. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**15. The Forest Service should explain why drastic changes were made to the draft forest plan without public input.**
Particularly in the latter stages of the revision process

This comment is not relevant to the Jefferson National Forest, since only very minor changes were made to Alternative I between the August 2002 public meetings and the issuance of the RPLRMP.

## Role of Interest Groups

**16. The Forest Service should not allow industry groups to dictate National Forest System lands policy.**
The responsible official (in the case of the RLRMP, this is the Regional Forester) must consider comments from all interested agencies, tribes, groups, organizations, and individuals. The decision is based on a determination of the Net Public Benefit of the action. The Rationale for the Decision in the Record of Decision documents the decision.

**17. The Forest Service should not overemphasize the role of public input in the forest plan revision process.**
Because wildlife populations and forest resources will suffer and the American people will ultimately be denied the benefits of a valuable national heritage

Section 14 of the National Forest Management Act requires public participation in forest planning. Many different avenues for public involvement were provided in order to facilitate access to this process by as many people as possible. Meetings close to Ranger District offices were designed to attract local forest users.

Although public involvement is an important aspect of national forest planning, decisions are ultimately made by the Regional Forester using the best science available along with public sentiment.

## Public Meetings

**18. The Forest Service should consider that the public involvement methods and meetings favored environmental interests.**
As described in Appendix A of the EIS, many different types of meetings workshops, field trips, and comment opportunities were provided throughout the planning process. These were held at many different times of the day, days of the week, and locations across southwestern Virginia. Because it is difficult for some people to attend meetings regardless of when and where they are held, we always made it clear at every public involvement activity that we had a responsibility to represent all viewpoints and communities of interest in national forest management whether they attended the meetings or not.

**19. The Forest Service should schedule additional public meetings for the PRLMP.**
Because the new categorical exclusion process reduces the public's ability to comment on and challenge Forest Service projects

The responsible official has provided adequate opportunities for public comment

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and dissemination of information on the analysis and the decision being made. Consideration of new project level requirements under the National Environmental Policy Act is outside the scope of this analysis. Extensive public involvement occurred throughout the planning process.

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**20. The Forest Service should list all meetings involved with the forest plan revision process.**
Appendix A lists those meetings, workshops, and field trips that were specifically designed for public involvement. While it is true that many of the Interdisciplinary Team (IDT) meetings were open to the public, these meetings were not primarily designed for public involvement. They were open so that citizens could observe the IDT process and learn more about the conflicts that are always present when trying to the balance multiple uses of the national forests.

## Adequacy of Comment Period

**21. The Forest Service should require a new comment period if there are significant changes from the draft plan to the final plan.**
Changes made between the Proposed and Final RLRMP are summarized in Chapter 2 of the EIS. A new comment period, and a supplemental EIS may be required if the responsible official decides that significantly new information is unearthed or if changes in the decision are outside the range of the alternatives already considered in the DEIS. In this case, no new information is being presented and the range of the alternatives presented in the DEIS encompasses the decision which is being made. Since the point of issuing a DEIS and Proposed RLRMP is to make necessary changes in response to public comment, we could theoretically be caught in a never-ending cycle of making changes and issuing new draft documents for review.

**22. The Forest Service should extend the comment period.**
Because there was confusion as to when the Notice of Availability would appear in the Federal Register

By 30 days

By 90 days

To 120 days

To 180 days

To September 1, 2003

To give the public more time to comment on Alternative C

The responsible official has provided adequate opportunities for public comment and dissemination of information on the analysis and the decision being made.

**23. The Forest Service should establish a comment deadline that is consistent across all five forests.**
As a result of these comments, the deadline for comments was adjusted so that they were all the same. The original intent was to do this but when the process of printing and distributing the documents caused them to become staggered some forests ended up with slightly longer comment periods with different deadlines. To adjust, the Regional Forester decided to publish a new notice and make them coincide, lengthening some.

## USE OF SCIENCE

## Best Available Science

**24. The Forest Service should base the draft forest plan on sound science.**

**And not on the agendas of special interest groups**

The Selected Alternative is the result of our best efforts to resolve the 20 significant issues this plan is attempting to address. Many of those issues conflict with each other, so efforts were made to find the "middle ground" where we could best address multiple issues at the same time. Efforts to define this "middle ground" were dependent upon not only the best scientific information available, but citizen input as well. Many communities of interest were involved in the development of the RLRMP through public meetings and workshops as described in Appendix A of the EIS. Our partners in Forest Service Research, the Forest Health Protection Unit in Asheville North Carolina, the U.S. Fish and Wildlife Service, Bureau of Land Management, universities throughout the South, and various State agencies also worked with us in developing and analyzing all alternatives throughout this process. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments, informed by the best scientific information available. There is no single "source" of information or single "viewpoint" that "drove" this decision. The U.S. Fish and Wildlife Service will issue their Biological Opinion on the Final RLRMP and FEIS prior to the Record of Decision being signed.

## Maps/Inventories/GIS

**25. The Forest Service should improve the "textures" of polygons in GIS maps.**

Throughout the planning process for the National Forests in the Southern Appalachians, efforts have been made to meet both regional consistency concerns as well as providing the flexibility to address local concerns. Often times, efforts to address regional consistency would be in conflict with meeting local needs, and visa versa. In order to address these often mutually exclusive efforts, the strategy was developed where there would be a common framework for the Revised Plans and EISs (in terms of such things as a set of common issues, a common set of management prescriptions to choose from, and common approaches to conducting various planning analyses). However, within this common framework, the individual Forests could make adjustments to meet their local situation. This included "localizing" the desired condition statements, goals, objectives, standards and management prescription allocations. The "textures" of polygons on maps were based on local Forests GIS capabilities, scale of available inventories, and other local factors.

**26. The Forest Service should include additional maps in the Jefferson National Forest DEIS and PRLMP.**

Maps showing our current road and trail system, Recreation Opportunity Spectrum, and scenic Integrity Objectives have been added to the CD-Rom that accompanies the FEIS and RLRMP.

**27. The Forest Service should include maps with key features clearly shown in the Roadless Area Evaluation.**

Maps showing various key features of the inventoried roadless areas are available in the Process Record at the Forest Supervisor's office. The commenter has been provided these maps.

## OLD GROWTH INVENTORY

**28. The Forest Service should inventory for old growth.**

**29. The Forest Service should follow regional guidance regarding old growth.**

**30. The Forest Service should consider a number of comments on old growth guidance in the Jefferson DEIS.**

The FEIS and Final RLRMP have been modified to better address the Regional Old

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Growth Guidance.

The regional old growth guidance provides information on how to identify existing old growth areas, different options for managing old growth, and an overall approach for addressing old growth during forest planning. We followed this guidance by conducting an inventory of possible old growth, which included use of historic aerial photography, field review, and information from our State agency partners and citizens. We used this inventory as a guide in the development of the different alternatives. The RLRMP provides a network of old growth areas across the forest. This "network" does not consist only of areas allocated to an old growth management prescription (6A, 6B, or 6C). There are many management prescriptions that will allow stands to eventually provide old growth conditions and these areas are a part of the overall "network". Chapter 3 of the EIS shows the acres of existing and future old growth for all the alternatives.

31. **The Forest Service should provide adequate old growth goals, objectives, and management prescriptions for the Southern Appalachian forests.**
32. **The Forest Service should establish a regional network of interconnected reserves and appropriate linkages.**
33. **The Forest Service should better explain the old growth network on the Southern Appalachian forests.**
34. **The Forest Service should better address the overall old growth strategy.**
35. **The Forest Service should consider that some aspects of Regional Old Growth Guidance were not included in the development of the Jefferson National Forest plan.**
36. **The Forest Service should recognize that the plans are inconsistent both across forests and within forests in the prescriptions that are considered old growth compatible.**

There are a number of ways to meet the regional old growth guidance for having a "network" of large, medium and small old growth patches. These "patches" do not need to be specifically allocated to an old growth management prescription (6A, 6B, 6C). Both existing and future old growth characteristics can be met in other management prescriptions as well. When all the compatible prescriptions were mapped out and analyzed according to size and forest community type, a determination was made as to whether or not this "old growth network" was adequate, or if other specific old growth allocations were needed to fill in any "gaps" in the "network". In most cases, it was determined that the combination of the allocations of all the old growth compatible management prescriptions, along with the Forestwide standard on "existing old growth", that the resultant "old growth network" was sufficient to address the old growth issue. A map displaying this old growth network for the RLRMP has been added to the CD-Rom set of maps accompanying the Plan. Goals, objectives and standards for management of old growth can be found in Chapters 2 and 3 of the RLRMP. Appendix D of the RLRMP also discusses the strategy for identifying and allocating old growth patches during Plan implementation.

The lists of management prescriptions that are considered "old growth compatible" vary between the Southern Appalachian Forests because of two reasons. Different Forests use different subsets of the total list of possible management prescriptions. For instance, one Forest may have some lands allocated to a Management Prescription 12C, while another Forest may have no lands allocated to that particular prescription. Another reason is that while there is a regional set of "generic" management prescriptions, each Forest could "localize" these prescriptions to meet their local issues or conditions or through the public involvement process. As a part of this "localization", some aspects of the prescription could be changed so that it would no longer be considered "old growth compatible". For instance in some cases, it was a Forest determination as to if a particular management prescription could contain lands "suited for timber production". In these situations, if that particular prescription had "suited" acres,

then it could be viewed as not being "old growth compatible". But if another Forest made the determination the same management prescription would be "not suited for timber production", then it could be viewed as being "old growth compatible".

**37. The Forest Service should explain why only the Jefferson National Forest documents "existing old growth."**

**38. The Forest Service should consider other inventories presented as existing old-growth**

The Forests in the Southern Appalachians are in different situations in terms of their old growth inventories of "existing old growth", with some further along than others. The JNF was fortunate to have a biologist who dedicated a tremendous amount of time to not only the inventory itself, but also accompanying and training interested citizens. These citizens helped us identify potential old growth, which was followed by agency verification that an identified area met the criteria specified in the regional old growth guidance. Virginia Natural Heritage Program biologists also assisted in the inventory of old growth.

**39. The Forest Service should consider the limitations of relying on the "Jesse Overcash" old growth survey.**

The old growth survey performed by Wildlife Biologist Jesse Overcash is the most detailed inventory of existing old growth available, but we do recognize new areas may be discovered in the future. Forestwide standards in Chapter 2, management prescriptions in Chapter 3, and Appendix D of the RLRMP all provide additional direction and guidance for newly discovered old growth communities. The total picture of old growth provided in all Alternatives is described in Chapter 3 of the EIS and is not limited to just the old growth survey. All alternatives include future old growth in lands where timber harvesting will not occur including wilderness and backcountry areas. Many alternatives, including Alternative I, allocate future old growth to one of the category 6 management prescriptions in order to create medium-sized patches from existing smaller patches. Alternatives B and G did this to the greatest extent and relied heavily on the Continuous Inventory of Stand Conditions to accomplish this.

**40. The Forest Service should consider the mismanagement of old growth based on outdated inventories.**

Old growth inventories used in development of the DEIS are current, but dynamic in that they are constantly being revised or updated. The FEIS and Final RLRMP have been updated to include the most recent inventory of old growth. The RLRMP provides both Forestwide and management prescription standards for amending the RLRMP as new old growth is discovered. Appendix D provides the strategy for evaluating newly discovered old growth patches, including useful distribution and abundance information by forest community type.

### OLD GROWTH MAPS

**41. The Forest Service should adequately map and display the networks of large, medium, and small old growth patches.**

We have included a more detailed map of large, medium, and small patches of old growth on the CD-Rom which accompanies the final documents. We have also added to the discussion in the FEIS regarding the distribution and abundance of old growth by patch size.

## Monitoring

**42. The Forest Service should provide appropriate monitoring in the PRLMP**

**43. The Forest Service should develop better develop the monitoring and evaluation plan in chapter 5 of the PRLMP**

**44. The Forest Service should conduct measurements and monitoring of fish and wildlife to**

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**examine the effects of management actions.**

**45. The Forest Service should clarify the monitoring and evaluation of rare communities.**

**46. The Forest Service should establish guidelines to monitor the effectiveness of the forest plan**

**47. The Forest Service should provide better monitoring questions in chapter 5 and appendix g**

**48. The Forest Service should establish specific objectives for monitoring**

**49. The Forest Service should provide clear language and detail to describing monitoring and monitoring practices, and develop clear standards for monitoring.**

Chapter 5 of the RLRMP provides for monitoring of the plan, identifying the basic questions to be addressed in monitoring the effectiveness of the plan. Guidelines in Chapter 5 are detailed further in the Monitoring Summary Table in Appendix G. The Monitoring Summary Table identifies specific, measurable elements of each monitoring question and ties them back to the goals, objectives and standards of the plan. Specific methods for monitoring are not required as part of the plan but will be provided in Task Sheets maintained outside the plan to provide for dynamics of implementing the monitoring plan. Each task sheet is tied back to a monitoring element in the Monitoring Summary Table as well as goals and objectives.

36 CFR 219.12 (k) details the regulatory requirements for monitoring and evaluation of forest plans. Additional policy and guidance is provided in Forest Service Manual 1920 and Forest Service Handbook 1909.12, Chapter 6. The overall objective of monitoring and evaluating forest plans is to determine whether programs and projects are meeting forest plan direction. Within this broad objective, specific goals are to: (1) ensure that forest plan goals and objectives are being achieved and management prescriptions are being implemented as directed; and (2) determine if the costs of implementing the plan and the management effects are occurring as predicted.

In response to these requirements, the matrix reflected in the Monitoring Summary Table reflects the relationships between each of the forest plan goals and objectives and the monitoring questions and elements. Due to the integrated nature of plans and management of resources, there is often a combination of actions and effects that must be evaluated together to be meaningful. The Monitoring Plan in this way represents a strategic approach that reflects these relationships rather than the development of monitoring for each goal and objective independently. Annual monitoring of costs for implementing the plan is provided.

**50. The Forest Service should ensure appropriate monitoring and record maintenance**

NFMA regulations specify monitoring requirements for Forest Plans. The Monitoring Summary Table provides a matrix that relates the measured goals and objectives described in detail in earlier chapters of the RLRMP to the monitoring activities described as monitoring questions, elements, general methods, duration/ frequency, reporting intervals, precision, reliability and responsibility. More specific protocols, methods, sampling intensities and locations to be applied in completing the described monitoring activities, which are frequently questioned in public comments, are covered in Monitoring Task Sheets outside the RLRMP. Implementation of the RLRMP will be accomplished through projects, which must comply with the RLRMP. Project planning and monitoring is done to assure that work is accomplished in compliance with the RLRMP. Periodic reviews of projects assure that these requirements are being met.

**51. The Forest Service should establish the needed fine filter approach that a good monitoring program would establish**

We agree that inventory and monitoring are critical and necessary components of a program to provide for species viability. Because of the incredible diversity of species on the forest monitoring populations of every species of potential viability concern is not feasible. Practical monitoring programs must combine monitoring of habitat conditions, populations of indicator species, and populations of priority

viability concern species. This combination is reflected in the Revised Plan's monitoring chapter, which includes monitoring questions that cover all of these elements. The Monitoring Summary Table in Appendix G of the Revised Plan provides more specifics on relevant elements to be monitored, including individual federally listed species that are known to occur on the Jefferson National Forest (blackside dace, James River spinymussel, northern flying squirrel, Indiana bat, northeastern bulrush, Virginia spirea, small-whorled pogonia, and Virginia round-leaf birch. Details of monitoring tasks outlined in Appendix G will be developed as we begin to implement the revision and refined based on best available science.

In addition, Task #33 in the Monitoring Summary Table indicates additional inventory and monitoring of viability concern species (including "locally rare" species, where appropriate) will occur based on prioritization developed and revised during plan implementation. Prioritization will involve use of more site-specific information on species occurrences, in addition to the more general information from the viability evaluations in the EIS. Although commenters expressed desire to see more of this information in the EIS, more detail is not necessary at this strategic planning level. Given the large number of species and the site-specific considerations involved, and the likelihood that priorities will shift throughout the life of the plan as better information is obtained, it is appropriate to establish these additional details as part of plan implementation.

Related comments contend that the set of selected Management Indicator Species (MIS) are inadequate to represent all species of viability concern. As discussed above, indicator species are but one part of our biological monitoring program. We have made no effort to select MIS to represent all species of viability concern, nor is there a requirement for us to do so. MIS, as described in 36 CFR 219.19, serve a variety of purposes during forest planning, not all of which are relevant to species viability. Only where appropriate are MIS selected for the Revised Plan "because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities" (36 CFR 219.19 (1)). Reasons for selection of MIS are documented in Chapter 5 of the Revised Plan, in the relevant sections of the EIS, and in the Management Indicator Species Selection Process Record. Some commenters correctly noted that we have de-emphasized the role of MIS in viability analysis. We have reduced emphasis on MIS because of the current state of science, which calls into question many traditional uses of the indicator species concept (see MIS Selection Process Record for a brief review). Nevertheless, our selection and use of MIS in this plan revision meets both the letter and intent of regulations.

**52. The Forest Service should ensure adequate monitoring and evaluation.**

**For special areas**

**For old growth**

Many public comments reflect an interest in rigorously exploring cause and effect relationships as they may relate to planned practices, much as would be done in research studies. Forest plan monitoring is distinguishable from rigorous research studies in that it builds information to be used through the more routine observations that are part of the programs and actions required during implementation. Measurements and observations are planned, but from a more strategic and with less rigor basis than would be required for research studies. It is Forest Service policy to use the management review system as the primary process to ensure evaluation and documentation of the results of RLRMP monitoring are accomplished. RLRMP implementation will be accomplished through projects, which must comply with the plan. Project planning and monitoring is done to assure that work is accomplished in compliance with the plan. Periodic reviews of projects assure that these requirements are being met.

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**53. The Forest Service should seek additional funding to conduct monitoring.**
Funding is clearly a limiting factor for monitoring as well as any other activity of national forest management. Funding needs for the monitoring of this RLRMP will be assessed and planned on the Forest in the initial year of implementation and for each subsequent year. Funding needs will be reported to the President for agency budget formulation. Funding levels ultimately are the purview of Congress and the President. Additional actions that are being taken and continually explored to stretch available funds and provide for monitoring needs include: (1) application of remote sensing, geographic information systems and expanded data analysis capacity; (2) utilization of information provided by other agencies; (3) partnerships with agencies, universities and professional organizations; (4) utilizing qualified volunteers to supplement the agency workforce.

Monitoring Task Sheets will be developed to utilize these resources to extend the agency capacity to monitor the effectiveness of the RLRMP. Annual review and adjustment to the Monitoring Task Sheets will provide for changes needed due to technological advances, shifts in funding and priorities, workforce changes, and new opportunities for cooperation. Research needs will be identified and updated each year for additional effectiveness and validation needs that exceed the monitoring program itself.

## AGENCY ORGANIZATION AND FUNDING

### General

**54. The Forest Service should be under the jurisdiction of the Department of the Interior and not the Department of Agriculture.**
An administrative action such as changing the Department within which the Forest Service is located is beyond the scope of a forest plan.

### Funding and Staffing

**55. The Forest Service should ensure that the appropriate funding is in place to implement the PRLMP.**

**56. The Forest Service should ensure that forest plan goals, objectives, and outputs reflect fiscal and staffing realities.**
The Forest Service has limited discretion in setting budgets for Forest Plan implementation. We identify annual funding needs reflecting different levels of Forest Plan implementation, from full funding needs for the highest level of plan implementation to minimum operating needs. Actual funding ultimately is the purview of Congress and the President. Funding is a recognized limiting factor that controls the degree and speed to which the planned goals and objectives can be accomplished. The RLRMP does reflect realistic estimates of budget and staffing. The budget is based on the Forest's Fiscal Year 2004 Budget Formulation and Execution System's estimate of 110% of current funding.

**57. The Forest Service should reveal the estimated budgets for implementing each alternative.**
The process records for the Socio-Economic Analysis and Budget analysis include estimates of the budget needed to implement each alternative.

**58. The Forest Service should better integrate the different disciplines within the agency.**
The RLRMP and FEIS were prepared by an interdisciplinary team. See Chapter 4 of the EIS.

**59. The Forest Service should ensure that the appropriate personnel are working on the PRLMP.**
EIS Chapter 4 identifies the main preparers of the EIS and the Forest Plan.

**60. The Forest Service should, in the final forest plan, consider the current administration's outsourcing initiative**

Administrative actions such as outsourcing are outside the scope of a forest plan.

## EDITORIAL OR TECHNICAL COMMENTS/CORRECTIONS

**61. The Forest Service should, in the PRLMP, better define standard percentages that are referenced in the plan.**

Chapter 2, Wildlife and Threatened, Endangered, and Sensitive Species Habitat of the PRLRMP explained how percentages for habitats and calculations for road density are determined. This discussion has been clarified in the Final RLRMP.

**62. The Forest Service should correct the Jefferson PRLMP and DEIS.**

We have considered each of the suggested edits to the PRLRMP and made changes where appropriate.

**63. The Forest Service should correct several mapping errors in the Jefferson National Forest DEIS and PRLMP.**

Mapping errors have been corrected. It is worthwhile to note that US 460 is coincident with US 221 through eastern Roanoke County and Botetourt County. We have changed the map as a result of this comment, but the original map was not incorrect.

**64. The Forest Service should make corrections to the appendices in the Jefferson DEIS.**

Blanks in Appendix H (References) have been corrected. Appendix G (Index) is not "vacant", but rather describes how the Index for the EIS is placed along the edge of each page instead of in a list at the back of the document. All documents associated with the RLRMP and EIS are available on a fully indexed CD-Rom.

**65. The Forest Service should make several corrections to the PRLMP.**

Thank you for these editorial corrections. Appropriate changes have been made.

**66. The Forest Service should define several phrases used in the PRLMP.**

These definitions have been added to the glossary in the Final RLRMP and EIS.

**67. The Forest Service should recognize that past management plans have been based on outdated models and erroneous conclusions.**

Past management plans are outside the scope of this analysis. We have used the best science available in our analysis of the RLRMP.

**68. The Forest Service should review and update all sections that refer to reports or published references.**

**To prevent distributing inaccurate information to the public and making decisions based on outmoded information**

**Because forest data on amphibians and reptiles is incorrect and outdated**

This information has been reviewed and updated as appropriate. Many additional References have been added to The FEIS, Appendix H, References, however NEPA documentation was not intended to be encyclopedic. There is no requirement that all information in the process record be in the DEIS or that all theories and information reviewed be included in the record.

**69. The Forest Service should provide more detailed information on the effects of resource management activities.**

This information is available in Chapter 3 of the EIS in several different sections, although these are just estimates of probable amounts of different activities. The RLRMP focuses on goals and desired conditions. Different tools are available for achieving these desired conditions including doing nothing when appropriate. Which tool is appropriate for a particular situation will be determined at the time of a site-

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specific project analysis.

**70. The Forest Service should modify plan wording as recommended.**

**71. The Forest Service should modify plan wording, as recommended.**
**To benefit wildlife management**

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Thank you for your suggestions, they were helpful in reviewing our draft documents. We have reviewed your comments and made appropriate changes.

**72. The Forest Service should provide clear, concise, and unambiguous management objectives.**
**To maximize management efficiency**

Thank you for your suggestions, they were helpful in reviewing our draft documents. We have reviewed the wording of our objectives and made appropriate changes.

**73. The Forest Service should modify certain objectives for the Jefferson National Forest.**
Thank you for your suggestions, they were helpful in reviewing our draft documents. We have reviewed the wording of our objectives and made appropriate changes.

**74. The Forest Service should provide better analysis in appendix I**

**75. The Forest Service should include, in appendix I, a listing of research needs**

**76. The Forest Service should include several research needs in appendix I**

**77. The Forest Service should consider, to comply with NFMA, several research questions**
Thank you for your suggestions for Research Needs. We have reviewed and considered these and they were helpful in developing this Appendix. This Appendix has been completed in the Final RLRMP.

## Appendix B

**78. The Forest Service should tailor the language in appendix b to reflect the process used in developing the five southern Appalachian forest plans**
The first part of Appendix B is the demonstration of how the Forest used analysis processes to fulfill portions of the 10-step planning process as part of the 36 CFR 219 regulations. The remaining parts of Appendix B describe the various tools and assumptions used in the analysis processes. We did not make any references to an Appendix H because we did not do an appendix of expected outputs and conditions.

## COMMENTS ON MANAGEMENT PRESCRIPTIONS

**79. The Forest Service should modify various management prescriptions used in the Jefferson National Forest.**
Thank you for your suggestions, they were helpful in reviewing our draft documents. We have reviewed and considered these and made appropriate changes.

**80. The Forest Service should modify 9.H., as recommended, to manage more naturally and protect mixed mesophytic forest types.**
Thank you for your comment. Various forest communities found within this management prescription will be managed using the best available science and the appropriate reference communities. We will work closely with scientists both within and outside the Forest Service to determine the best course of action to maintain or restore these communities. We agree that timber harvesting or prescribed fire may or may not be the best course of action depending on the type of community and its existing condition.

**81. The Forest Service should revise specific management prescriptions, standards, and objectives to utilize ecological forest restoration and ecosystem management.**
We have added additional information to the background section of Wildlife in Chapter 2 of the RLRMP to explain the historic conditions of open woodlands in the xeric pine and pine-oak forest and woodland communities on the Jefferson. The EIS,

Chapter 3, Major Forest Communities also provides more detail regarding what is meant by restoration and maintenance of this condition which has almost disappeared from the Southern Appalachians.

**82. The Forest Service should modify Prescription 8.E.1 to allow larger timber harvest areas in riparian corridors.**

To improve grouse brood habitat

Timber harvesting activities may occur in Riparian Corridors (Management Prescription 11) when this tool is useful to maintain, restore or enhance riparian functions and values and to meet the needs of riparian species. The Management Prescription 8.E.1. (Ruffed Grouse/Woodcock Habitat Emphasis) and the riparian corridor management prescription 11, allow for creation of early successional habitat within the riparian corridor, while also protecting other riparian resources and values. Standard 8E1-002 in the PRLRMP states "Early successional habitat openings larger than 5 acres may extend into the adjacent upland areas, as long as the opening area within the riparian corridor (Management Prescription 11) is not greater than 5 acres in size." The paragraph on page 3-123 of the PRLRMP under emphasis has been changed.

**83. The Forest Service should modify certain standards for the Jefferson National Forest.**

Thank you for your suggestions, they were helpful in reviewing our draft documents. We have reviewed the wording of our standards and made appropriate changes.

**84. The Forest Service should apply prescriptions 8.A. 1, 8.B., and 8.E.1, or 10.A and 10.B to additional areas of each national forest unit.**

To increase the number and distribution of timber sales

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. Different combinations of management prescriptions are used in different alternatives. There is an infinite combination of management prescriptions and therefore, Alternatives possible. Alternatives D and F have higher levels of commercial timber harvesting. The FEIS includes 7 Alternatives, each with different combinations of management prescriptions. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options for addressing the significant issues, including commercial timber harvesting.

## RELATION TO OR CONSISTENCY WITH OTHER PLANS, DIRECTIVES, ETC.

### Forest Service Plans, Directives, and Policies

**85. The Forest Service should consider the impact of the new categorical exclusions on the forest planning process.**

And carry out a much more thorough analysis in the forest plan

**86. The Forest Service should ensure that the PRLMP has a thorough level of analysis Because most timber sales on Virginia's National Forests can be categorically excluded from site-specific analysis**

**87. The Forest Service should adequately address the effects of timber categorical exclusions on the proposed forest plan revisions.**

Consideration of new project level requirements under the National Environmental Policy Act is outside the scope of this analysis.

### Roadless Area Conservation Rule

**88. The Forest Service should, in the PRLMP, consider the public's support for the Roadless Area Conservation Rule**

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Because the ninth circuit court has reaffirmed the legality of the Roadless Area Conservation rule

**89. The Forest Service should act in accordance with the Roadless Policy.**

**90. The Forest Service should ensure that the PRLMP is consistent with the Roadless Area Conservation Rule**

**91. The Forest Service should ensure that management direction is consistent with the Roadless Area Conservation Rule**

On July 14, 2003, a Federal District Court Judge permanently enjoined the 2000 Roadless Area Conservation Rule (RACR). Should this decision be overturned through further court proceedings, and the RACR go into effect, then the direction from this Rule would supercede Forest Plan direction. Additionally, should the RACR go into effect, it would not require an amendment or revision of the Forest Plan (36 CFR 294.14(b)).

In terms of the RLRMP being consistent with the RACR, in the preferred alternative identified in the DEIS, 100% of the roadless areas would have their roadless characteristics maintained and 77% of the roadless areas would be consistent with the RACR. The Record of Decision documents where management would be inconsistent with the RACR.

**92. The Forest Service should revise the DEIS to consider the full spectrum of reasonable alternatives Including an alternative managing all roadless areas consistent with the Roadless Area Conservation Rule**

Alternative G manages 100% of the inventoried roadless acres consistent with the RACR. Alternative D manages 26% of the inventoried roadless acres consistent with the RACR. The "No Action" Alternative F (1985 Forest Plan) manages 38% of the inventoried roadless acres consistent with the RACR. The preferred alternative identified in the DEIS manages 77% of the inventoried roadless acres consistent with the RACR. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**93. The Forest Service should replace all early-successional habitat that is taken by the Roadless Area Conservation Rule**

To prevent further habitat loss and species decline

The FEIS includes 7 Alternatives, each with different amounts of early successional habitat and different responses to the RACR (See also Response #92). Alternatives D and F provide higher levels of early successional habitat and manage a smaller percent of the Forest consistent with the RACR. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of public desires evident in the comments.

## Healthy Forest Initiative

## Planning Rule

**94. The Forest Service should incorporate the general direction of the revised planning rule in the Region 8 forest plan revisions.**

This plan has been conducted under the September 30, 1982 National Forest System Land and Resource Planning Regulations for implementing the NFMA. There are many good concepts presented in the proposed planning rule of 2002, and where those concepts were consistent with the 1982 planning rule, we attempted to implement those concepts. However, since the “revised” planning rule is still draft and subject to change, we cannot implement something that is draft and we have to follow the rule that is in effect, which is the 1982 planning rule.

## Consistency among Region 8 Forest Plans

**95. The Forest Service should initiate revision of the George Washington National Forest Plan.**
To make the plan consistent with the revised Jefferson National Forest

Initiation of a plan revision on another National Forest is outside the scope of this analysis.

**96. The Forest Service should develop specific, specialized forest plans for each of the Region 8 forests.**

**97. The Forest Service should use consistent formants across the five forest plans.**

**98. The Forest Service should ensure that regional consistency takes precedence over the autonomy of individual forest plans.**

Throughout the planning process for the National Forests in the Southern Appalachians, efforts have been made to meet both regional consistency concerns as well as providing the flexibility to address local concerns. Often times, efforts to address regional consistency would be in conflict with meeting local needs, and visa versa. In order to address these often mutually exclusive efforts, the strategy was developed where there would be a common framework for the Revised Plans and EISs (in terms of such things as a set of common issues, a common set of management prescriptions to choose from, and common approaches to conducting various planning analyses). However, within this common framework, the individual Forests could make adjustments to meet their local situation (this included "localizing" the desired condition statements, goals, objectives, standards and management prescription allocations).

**99. Ensure that the PRLMP is consistent with national and regional guidance**

The development of the Revised Forest Plans for the National Forests in the Southern Appalachian involved a high level of coordination between the Regional Office and the five forest planning revision efforts. This coordination started with the development of the Southern Appalachian Assessment, the issuance of the Notice of Intent, and then the identification of the "common" issues to be addressed. Regional guidance was provided in such things as the regional old growth guidance, guidance on determining the roadless area inventory, guidance on evaluating the roadless areas for possible wilderness designation, guidance on watershed analyses, a common set of Management Prescriptions, common "themes" for the alternatives, a common set of "design criteria" for developing Alternative I, and common outlines for the RLRMP and the EIS. In addition to this guidance, teams were set up which included individuals from both the Forests and the Region to develop a common approach to developing RLRMP direction and environmental impact analyses. These teams included one for addressing fisheries and wildlife issues, one for addressing recreation/wilderness/scenery issues, one for addressing riparian/watershed issues, and another informal team to address forest management issues. Lastly, all the Southern Appalachian Planners met periodically to work on coordination/consistency issues. All this was used to develop a regionally consistent framework for developing the RLRMPs in the Southern Appalachians. However, there were also "local" issues, concerns, citizens, situations, and circumstances that needed to be addressed. So while there was the "regional framework" for conducting planning, the Forests could vary within that framework to meet local needs.

## Site-Specific Project Plans

**100. The Forest Service should recognize that the PRLMP places too much emphasis on project level analysis.**

A Forest Plan is a strategic document that makes decisions on desired conditions, goals, objectives, standards, management prescription allocations, land suitability,

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monitoring requirements, establishing an Allowable Sale Quantity, making recommendations for Wilderness Study Areas and Wild and Scenic Rivers, and where applicable, consenting to oil and gas leasing. Any further decisions on how to meet this strategic plan direction is best addressed at the project level.

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## OTHER PLANNING ISSUES

**101. The Forest Service should include a field guide or implementation guide as appendices to the forest plan.**

**102. The Forest Service should incorporate "Implementation Guide for the Appalachian Trail" into the forest plan.**

**103. The Forest Service should not incorporate the "Implementation Guide for the Appalachian Trail" into the forest plan.**

**104. The Forest Service should complete a draft version of the implementation guide before the final resource management plan is completed.**

Management direction in the original Forest Plan in the 1980s included both standards and guidelines for management actions. Current regional agency practice is to include only management direction meeting the definition of a standard in the Revised Forest Plan. (Standards are specific resource management directions and often preclude or impose limitations on management activities or resource uses, generally for environmental protection, public safety, or to resolve an issue.) Some items were suggested during the planning process that are essentially the "how to's" of implementing the Forest Plan. These guides for implementation may take the form of field guides or handbooks and will be kept separate from the Revised Forest Plan.

**105. The Forest Service should clarify what items do not qualify as plan direction.**

This sentence has been deleted. All pertinent Forest Plan direction is included in the final RLRMP. See also Response #101.

## LEGAL

### Laws, Acts, and Policies (General)

**106. The Forest Service should list in the PRLMP the statutes which must be met in the management of the Jefferson National Forest**

Thank you for your comment. We agree Appendix A of the RLRMP is not required or necessary and have removed it.

**107. The Forest Service should ensure that the Jefferson National Forest draft plan is consistent with the requirements of the Organic Act of 1897 and the Multiple-Use Sustained Yield Act of 1960**

The Plan has been reviewed and is consistent with these laws.

**108. The Forest Service should ensure compliance with the National Forest Management Act, the Endangered Species Act, and the Clean Water Act**

**To protect aquatic resources**

The RLRMP is in compliance with the National Forest Management Act, the Endangered Species Act, and the Clean Water Act. The RLRMP protects aquatic resources by identifying streams, their beneficial uses and developing standards which protect those resources during management activities. These standards are found in the Riparian Corridor management prescription (11) and in Forestwide Standards. Further protection will be provided as needed at the project level.

### Federal Laws, Acts, and Policies

## NATIONAL ENVIRONMENTAL POLICY ACT

**109. The Forest Service should comply with NEPA.**

**110. The Forest Service should ensure that the Jefferson National Forest draft plan is consistent with NEPA.**

Because economic and technical considerations were subordinated to environmental amenities and values in violation of the intent of NEPA

**111. The Forest Service should consider that the PRLMP and accompanying DEIS violates provisions of NEPA.**

By not considering the alternative of returning forests of the region to their natural dynamics

By having the Content Analysis Team in Salt Lake City analyze the comments

By not using good data and relying on speculation

By basing decisions on arbitrary decisions

By not providing a full and fair discussion of significant information

By not disclosing significant information from the agency's own records

By failing to disclose or respond to the opposing evidence and analysis presented by an employee of the agency

By not addressing the uncertainties and risks associated with the succession-based management approach

By not analyzing all viable alternatives

By not including all relevant information in the documents

By not using good data and relying on speculation

By not revealing all of the environmental consequences of proposed actions

By not taking a "hard look" at the environmental consequences of agency actions

Because the DEIS fails to identify and analyze impacts in many areas

The NEPA process has been followed in the development of the EIS that accompanies the RLRMP. All values, whether economic, technical, or unquantified environmental amenities, were given equal consideration in development of the alternatives. Different individuals, organizations, corporations and agencies place different relative weights on the importance of providing different uses, values, products and conditions. This fact results in different opinions over which alternative should be selected as the Revised Plan. The Record of Decision explains the rationale for which alternative maximizes net public benefits in an environmentally sound manner.

There is no requirement to include discussions from all proponents of theories on the genesis of current forest conditions or to incorporate the data they claim as supporting. The management activities contemplated under the alternatives are not new and uncertain practices. The effects of these activities at a programmatic level are disclosed in the EIS. Site-specific effects will be analyzed at the project level. Nevertheless, the IDT did consider the information available concerning the natural processes that occur in the Southern Appalachians. Acres in many of the Management Prescription allocations do not have scheduled entries to create successional forests, and instead rely primarily on natural processes.

There is no requirement that all information in the process record be in the DEIS or that all theories and information reviewed be included in the record. NEPA documentation was not intended to be encyclopedic.

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There is no requirement to develop an alternative that does not meet the purpose or desired conditions. The alternatives and desired conditions were not arbitrary. The FEIS includes 7 Alternatives, each with different combinations of responses to the 20 significant issues. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options responsive to the significant issues.

Alternative C considered, but not in detail, a custodial level of management that essentially allows the forest to be shaped by natural disturbances. All alternatives maintain the vast majority of the JNF in late successional forest. Naturally generated disturbances cannot be relied upon for the desired timing, size, and distribution needed for regeneration and openings.

The content analysis process used in this EIS is fully compliant with NEPA. Comments were read, sorted, catalogued, and grouped by the Content Analysis Team-the responses were made by the Jefferson National Forest and Regional Office ID Team members and specialists.

With respect to the Biological Opinion, in accordance with USFWS procedures, the Biological Opinion is issued when the Record of Decision is issued. NatureServe is a reputable contractor we used to create a database on species and their habitats.

The commenter disagrees with the assumptions underlying standards for buffer widths to protect streams. We believe the standards are adequate.

See also Response #527 and Response #116.

**112. The Forest Service should consider that the PRLMP and accompanying DEIS violates provisions of NEPA**

**By not adequately analyzing cumulative impacts**

**113. The Forest Service should consider the cumulative impacts of each alternative under consideration.**

**114. The Forest Service should address cumulative effects of proposed management actions within each forest plan.**

**To comply with NEPA**

**To include making management decisions on a restricted scale**

**To include analysis and management of species on a population basis**

We agree. The DEIS disclose the environmental effects, including cumulative effects of the proposed programmatic alternatives commensurate with the Forest Plan stage of decision making. Forest Plans do not generally make final irreversible or irretrievable decisions.

The disclosure of direct, indirect, and cumulative effects of the proposed action and other alternatives is required per NEPA and is discussed in the FEIS, not in the Forest Plan. All of these cumulative effects are collectively considered by the Regional Forester when making the final decision on what alternative will become the Revised Forest Plan.

**115. The Forest Service should conduct site-specific analysis and review scientific data.**

**To determine what efforts are needed to protect resources**

A Land and Resource Management Plan (LRMP) establishes a framework for managing a National Forest in terms of goals, objectives, standards, management prescription allocations, and monitoring requirements. However, a LRMP generally does not make decisions pertaining to site-specific activities. A NEPA-compliant analysis still needs to be accomplished before making any site-specific project decisions. It is at the project level that this site-specific analysis will occur and any

new science or new data is considered with respect to the project being proposed.

## NATIONAL FOREST MANAGEMENT ACT (NFMA)

**116. The Forest Service should consider that the PRLMP violates provisions of the National Forest Management Act.**

**By failing to disclose records and studies relevant to the revision process**

**By failing to model any non-timber outcomes of the action alternatives presented in the DEIS**

The NFMA has been followed in the development of the RLRMP and EIS. There is no requirement to include discussions from all proponents of theories on the genesis of current forest conditions or to incorporate the data they claim as supporting. The management activities contemplated under the alternatives are not new and uncertain practices. The effects of these activities at a programmatic level are disclosed in the EIS. Site-specific effects will be analyzed at the project level. Nevertheless, the IDT did consider the information available concerning the natural processes that occur in the Southern Appalachians. Acres in many of the Management Prescription allocations do not have scheduled entries to create successional forests, and instead rely primarily on natural processes.

The desired conditions of the management prescription allocations defined the interactions of the various resources, and what types of actions were compatible or incompatible with each other. Different models were then used to estimate the outcomes of meeting these desired conditions. Spectrum was just one of the tools used in this analysis. It is agreed that Spectrum was used primarily as a model to estimate timber-related outputs to meet vegetation management objectives, therefore only timber-related costs and benefits were included in the model. However, those outputs were then used to estimate effects on other resource values. A sediment model was built which included information from the Spectrum model. Likewise, wildlife effects models were used that included information from Spectrum and from GIS-based analyses. Recreation estimates were based on information from the National Visitors Use Monitoring Survey. Social and economic models were used that incorporated the results of all of these models to estimate jobs, income, and the present net value of the alternative. Chapter 3 of the EIS presents the physical, biological, economic and social effects of all management actions on the resources that we can quantify and numerous tables throughout the chapter compare those effects across the alternatives. As decision-maker, the Regional Forester will consider the resource trade-offs and opportunity costs associated with each alternative.

**117. Consider that the PRLMP violates provisions of the National Forest Management Act by not ensuring the consistency of resource plans and land management plans**

Throughout the planning process for the National Forests in the Southern Appalachians, efforts have been made to meet both regional consistency concerns as well as providing the flexibility to address local concerns. Often times, efforts to address regional consistency would be in conflict with meeting local needs, and visa versa. In order to address these often mutually exclusive efforts, the strategy was developed where there would be a common framework for the Revised Plans and EISs (in terms of such things as a set of common issues, a common set of management prescriptions to choose from, and common approaches to conducting various planning analyses). However, within this common framework, the individual Forests could make adjustments to meet their local situation (this included "localizing" the desired condition statements, goals, objectives, standards and management prescription allocations).

## ENDANGERED SPECIES ACT

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PROCESS PLANNING, PLOCIES, AND LAWS

**118. The Forest Service, as required by NFMA and the Endangered Species Act, should proceed with formal consultation with the U.S. Fish and Wildlife Service.**
Because the proposed activities may affect threatened and endangered species and because inadequate information and analysis exist to conclude that proposed activities are not likely to adversely affect any species

**119. The Forest Service should consider the entire action area and conduct consultation with the U.S. Fish and Wildlife Service.**

**120. The Forest Service should consult with the U.S. Fish and Wildlife Service.**

**121. The Forest Service should consult with the U.S. Fish and Wildlife Service in order to comply with the Endangered Species Act.**

**122. The Forest Service should consult with the Fish and Wildlife Service regarding the Indiana bat and its habitat.**

**123. The Forest Service should consult with the U.S. Fish and Wildlife Service regarding bat habitat and management and conduct studies to determine if bats roosts in trees.**
Because recent research shows that they roost in hollow boles

**124. The Forest Service should use the best science available in fulfilling consultation requirements.**
We initiated formal consultation with the U.S. Fish and Wildlife Service in August 2003 under provisions of the Endangered Species Act. This consultation covered all 35 federally listed threatened and endangered species known or that potentially may occur on the Forest and may be affected by Forest management. The Indiana bat was included among this group of species. The U.S. Fish and Wildlife Service will issue their Biological Opinion on the Final RLRMP and FEIS prior to the Record of Decision being signed.

## DATA QUALITY ACT

**125. The Forest Service should recognize that the PRLMP is in violation of the Data Quality Act.**
The Data Quality Act (DQA) is an attempt by Congress to ensure that federal agencies use and disseminate accurate information. The DQA requires federal agencies to issue information quality guidelines ensuring the quality, utility, objectivity and integrity of information that they disseminate and provide mechanisms for affected persons to correct such information. Congress enacted the DQA primarily in response to increased use of the internet, which gives agencies the ability to communicate information easily and quickly to a large audience. The comments that led to this Public Concern Statement point to the Forest not providing alternatives to large scale burning programs. This is a process question and not one that turns on providing accurate and complete information.

## WEEKS ACT OF 1911

**126. The Forest Service should ensure that the Jefferson National Forest draft plan is consistent with the Congressional intent of the Weeks Act of 1911.**
As the forest plan sets aside almost 70 percent of the land in preservation management prescriptions and does not use a single timber management prescription

The Plan has been reviewed and is consistent with the Weeks Act of 1911. Different individuals, organizations, corporations and agencies place different relative weights on the importance of providing different uses, values, products and conditions. This fact results in different opinions over which alternative should be selected as the Revised Plan. One of the FEIS alternatives will be selected as the Revised Plan by the Regional Forester as the alternative that maximizes net public benefits in an environmentally sound manner. See the Record of Decision.

## ORGANIC ACT OF 1897

**127. The Forest Service should ensure that the Jefferson National Forest draft plan is consistent with the requirements of the Organic Act of 1897 and the Multiple-Use Sustained-Yield Act of 1960.**

## EASTERN WILDERNESS ACT

**128. The Forest Service should ensure compliance with the Eastern Wilderness Areas Act.**

Thank you for your comment. We have followed the intent and spirit of the Eastern Wilderness Act of 1975. We are directed by the Code of Federal Regulations to evaluate and consider roadless lands for wilderness. 36 Code of Federal Regulations (CFR), 219.17 Evaluation of Roadless Areas, directs the Forest Service, unless stated differently by law, to evaluate and consider roadless areas for recommendation as potential wilderness areas during the forest planning process. We followed the three steps to determining what lands to recommend for wilderness designation found in Forest Service Handbook 1909.12. Chapter 7. This Handbook is based not only upon the 1964 Wilderness Act, but also recognizes, as stated in the Eastern Wilderness Act of 1975, that much, if not all of the land in the East, shows some signs of human activity and modification. The FEIS includes 7 Alternatives, each with different amounts of recommended wilderness study. The Record of Decision explains the rationale for which alternative provides the best balance in meeting both the laws, acts, and policies related to National Forest System management, but also the wide range of public desires evident in the comments.

## NATIONAL HISTORIC PRESERVATION ACT

**129. The Forest Service should, in the PRLMP, address the Forest Service's obligations under the National Historic Preservation Act.**

The RLRMP contains Forestwide standards for protection of heritage resources. Chapter 3 of the EIS compares the effects of the 7 alternatives on heritage resources. The Jefferson National Forest has a strong record of compliance with the historic preservation requirements in the National Historic Preservation Act, s. 106 which requires the agency to "take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register". The Forest works closely with the State Historic Preservation Office and Tribal Historic Preservation Office through a Memorandum of Understanding that describes how basic heritage inventory, survey, evaluation, and protection are undertaken. In every case, heritage values are considered during the project-level NEPA process and no actions that may adversely affect heritage properties eligible for the National Register of Historic Places are undertaken without consultation and, where necessary, data recovery or mitigation.

# ALTERNATIVES

## ALTERNATIVES (GENERAL)

### Alternatives Development/Range

**130. The Forest Service should continue to use the design criteria to guide the formulation of alternatives**

The "design criteria" was used only for the process of initially developing Alternative I in the same way as themes were used to develop the other alternatives. The primary design of Alternative I was for it to change and evolve as citizens worked together through public meetings and workshops. As a result of this collaboration, some changes to Alternative I (most notably the management prescription 10B) deviated from the initial design criteria.

**131. The Forest Service should consider that the PRLMP and accompanying DEIS violates provisions of NEPA by not analyzing all viable alternatives**

There is an infinite combination of Alternatives possible. The FEIS includes 7 Alternatives, each with different combinations of responses to the 20 significant issues. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options responsive to the significant issues.

**132. The Forest Service should have provided a wider range of alternatives**

NEPA regulations require that we "[c]onsider a full range of reasonable alternatives to the proposed action that address the significant issues and meet the purpose and need for the proposed action" (FSH 1909.15 Section 12.3c). The purpose and need and list of significant issues is disclosed in the DEIS, chapter 2. "NEPA requires that the EIS set forth only those alternatives sufficient to permit a reasoned choice" (Sierra Club v. Robertson, 845 F. Supp. 485, 500 (S.C. Ohio 1994)).

**133. The Forest Service should revise the DEIS to consider the full spectrum of reasonable alternatives**

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. There is an infinite combination of Alternatives possible. The FEIS includes 7 Alternatives, each with different combinations of responses to the 20 significant issues. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options responsive to the significant issues.

**Including alternatives that display a range of allocations for old growth patches with different levels of representation, distribution, and connectivity**

A map has been added to the CD-Rom that accompanies the FEIS to show the amounts and distribution of existing and future old growth. Existing old growth is protected in all alternatives with the exception of Alternative F (1985 Forest Plan). The FEIS includes 7 Alternatives, each with different amounts of future old growth as shown in Table 2-5 in the EIS. Alternative G allocates the most (317,300 acres) to future old growth, while Alternative D allocates the least (87,800 acres). We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable range of options for levels of old growth.

**Including alternatives C, H, E, and G**

**Including an alternative that eliminates commercial logging**

Alternative C, which was eliminated from detailed study, did not use timber

harvesting in any management prescription. Alternative H would make all JNF lands unsuitable for timber production, although it did include commercial and non-commercial timber harvesting. The EIS in Chapter 2, under Alternatives Considered But Eliminated From Detailed Study, describes the rationale for why Alternatives C and H were not analyzed in detail. Alternatives E and G are viable alternatives that were considered in detail.

**Including an alternative to the agency's prescribed burns and even-aged management**

Chapter 3 of the EIS compares the seven alternatives analyzed in detail. Maximum estimated acres of prescribed burning range from 2,900 acres per year in Alternative F to 19,300 acres per year in Alternative B. Estimated acres of planned even-aged harvesting range from 280 acres per year in Alternative G to 2,950 acres per year in Alternative D. (Alternative C, dropped from detailed study, contains 0 acres of timber harvesting). We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options responsive to the significant issues.

**Including an alternative that decreases or offers a moderate increase in areas prescribed burned**

The FEIS includes 7 Alternatives, each with different levels of prescribed fire. Alternative E best represents your views on the level of prescribed burning. Alternative F representing the 1985 Forest Plan has the lowest level of prescribed burning. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options responsive to the significant issues.

**Including a reasonable range of alternatives for Proposed Endangered or Threatened Species / Management Indicator Species monitoring**

Federally listed species are fully protected by the Endangered Species Act, therefore the decision space regarding management of these species is quite narrow and the alternatives appropriately do not vary much. Appropriate MIS are selected "because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities" (36 CFR 219.19 (1)). There is no requirement to select different MIS for different alternatives. Reasons for selection of MIS are documented in Chapter 5 of the Revised Plan, in the relevant sections of the EIS, and in the Management Indicator Species Selection Process Record.

**Including an alternative that addresses the monitoring of locally rare species**

Task #33 in the Monitoring Summary Table, Appendix G of the RLRMP, indicates additional inventory and monitoring of viability concern species (including "locally rare" species, where appropriate) will occur based on prioritization developed and revised during plan implementation. Prioritization will involve use of more site-specific information on species occurrences, in addition to the more general information from the viability evaluations in the EIS.

**134. The Forest Service should explain why recreation / wildlife / fish impacts are constant throughout all alternatives**

These impacts are not constant thoughout all alternatives as discussed in Chapters 2 and 3 of the DEIS. We no longer measure Use with Visitor Day nomenclature. Recreation measurement units of use were NVUM (National Visitor Use Monitoring) data or proxies for this data. NVUM data was given for "National Forest Visits", "Site Visits", and "Wilderness Visits". NVUM also gave participation rates (percentages) by various Recreation and Wildlife activities. The units we used in IMPLAN to determine impacts were TRIPS for Resident and Non-resident "Overnight On National Forest Use"; "Overnight Off National Forest Use"; and "National Forest Day Use", because

this is the measurement we had in our recreation expenditure files. Each of these metrics (Overnight On National Forest Use; Overnight Off National Forest Use; and National Forest Day Use) measured in TRIPS were estimated from the NVUM forest data and converted from VISITS to TRIPS. This was accomplished by considering Recreation and Wildlife activity percentages and where they might fit within these expenditure measurement metrics.

## ALTERNATIVES NOT CONSIDERED IN DETAIL

### Alternatives C and H

**135. The Forest Service should not provide additional analysis for Alternatives C and G**

We assume the commenter meant Alternatives C and H since Alternative G was developed in detail. We are glad the commenter agrees with our rationale that these two alternatives did not need to be analyzed in detail.

**136. The Forest Service should evaluate a no commercial logging alternative**

**137. The Forest Service should analyze a "no-commercial" timber harvest alternative.**

**138. The Forest Service should cease timber production on National Forest System lands.**

**139. The Forest Service should reinstate and analyze Alternative C**

**Because this alternative was unreasonably dropped from consideration**

**To support recreational uses on National Forest System lands**

**Because this alternative was erroneously dropped**

**Because Alternative C can provide a number of benefits to National Forest System lands**

**Because although the DEIS claims it does not need to consider Alternative C in detail since the alternative is similar to the Minimum Level Benchmark analyzed in Appendix B, the Plan does not consider the Benchmark as an option for management of the Jefferson National Forest and, therefore, The Benchmark is no substitute for a detailed and complete analysis of Alternative C**

Numerous comments were made about the desire to have the National Forests managed under Alternative C, which is an alternative with "minimal human intervention", or to have an alternative with "no commercial timber harvesting". These two concepts are closely related and the responses to these concepts are therefore also similar. The rationale for not analyzing these alternatives in detail is described in Chapter 2 of the EIS under "Alternatives Considered But Eliminated From Detailed Study".

Alternative C was an alternative developed and considered, but after additional analysis and developing more alternatives, it was determined that the other alternatives would better meet the purpose and need, and do a better job of addressing all the issues. So it was decided we did not need to continue analyzing this alternative any further.

The purpose and need of revising the forest plan is to address the changing conditions that were identified in the Southern Appalachian Assessment, the Forest's Analysis of the Management Situation, and the changing public values as represented by the 20 significant issues. Alternative C would not address all these needs. The Multiple-Use Sustained Yield Act states that the Secretary of Agriculture should "develop and administer the renewable surface resources of the national forests for multiple use and sustained yield of the several products and services obtained there from" (Section 2). Alternative C does not accomplish this. Additionally, in the regulations implementing the National Forest Management Act, the requirement to "maintain viable populations of existing native and desired non-native vertebrate species in the planning area" (36 CFR 219.19) would not be met.

Many comments argue that no commercial harvesting is needed to protect watersheds and wildlife. But there are hundreds of different species of wildlife on the national forest, and "human intervention" is needed to provide or enhance the habitats for some of those species. In all the alternatives, the percentage of the forests in "mid- to late-successional" habitats ranges from 89% to 93% of the total forest acreage after 10 years of implementation. Also the riparian corridor prescription is applicable in all the alternatives except Alternative F, and this management will protect the Forest's aquatic resources. Elsewhere in the RLRMP, protective measures are in place to protect the watersheds in the Forest.

Providing for recreational opportunities is a key component of every alternative, and two of the issues to be addressed with the Forest Plan involve providing for recreational opportunities and managing the forests to protect their scenic resources. Some argue that commercial logging costs the taxpayer or is a subsidy to the timber industry. But having a contractor implement the management actions needed to meet the desired conditions, and returning money to the US Treasury in the process, is often the most cost-effective way to accomplish meeting those objectives.

**140. The Forest Service should analyze alternatives to consumptive natural resource development and uses.**

**Because alternatives exist that are more economically beneficial**

Alternatives were created using the process mandated by the NFMA and NEPA regulations. Most natural resource development and use on the national forest is renewable, not consumptive. For example, timber, forage, and water are all renewable resources. Minerals development and use is a non-renewable (or consumptive) resource. The FEIS includes 7 Alternatives, each with different acres of land available for federal oil, gas and other mineral leasing. Alternative G has the least amount of acres available for this use and Alternative F has the greatest amount of acres available (see Chapter 3 of the DEIS on pages 3-296 through 3-366). Included in the range is an alternative that called for minimal (custodial) management of the National Forest's resources. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options for addressing the mineral issue. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

## SPECIFIC ALTERNATIVES

### Multiple Alternatives

**141. The Forest Service should implement Alternative E or G Because these alternatives protect wilderness areas and support low amounts of timber harvest**

Alternatives E and G are considered in detail in the FEIS and one of them will be selected as the Revised Plan by the Regional Forester if it is identified as the alternative that maximizes net public benefits in an environmentally sound manner.

**142. The Forest Service should not implement Alternatives A, D, or F Because these alternatives will degrade the forest environment**

One alternative will be selected as the Revised Plan by the Regional Forester. The rationale for why other alternatives were not chosen will also be disclosed. See Record of Decision.

**143. The Forest Service should implement Alternative D or F Because these alternatives best respond to environmental issues raised in the planning process**

Thank you for expressing your views. All views were carefully considered during

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development and evaluation of the existing Alternatives. All alternatives received consideration by the responsible official. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

ALTERNATIVES

## Alternative A

## Alternative B

**144. The Forest Service should recognize that Alternative B allows too much timber harvest**

Thank you for expressing your views on this Alternative. All views were carefully considered during development and evaluation of the existing Alternatives. There is an infinite combination of Alternatives possible. The FEIS includes 7 Alternatives, each with different amounts of timber harvest. Alternatives E and G provide lower levels of timber harvest than Alternative B. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options for levels of timber harvest.

## Alternative D

**145. The Forest Service should modify Alternative D**

**To allow wildlife habitat improvement and erosion work in conjunction with timber harvests**

**To ensure that access roads are planned in a manner that protects water quality**

**To better control insect infestation**

**To encourage various uses on designated, open roads**

**To not recommend additional wilderness on the forest**

**To encourage the harvesting of merchantable, mature timber**

**To allow clear cutting, where appropriate**

**To establish a timber management demonstration area on the forest**

**To maintain progeny test areas on the forest**

**By including areas of past regeneration and / or in another designation restrictive or prohibitive of timber management and placing these areas in a zone designated for timber management**

Thank you for expressing your views on this Alternative. All views were carefully considered during development and evaluation of the existing Alternatives. There is an infinite combination of Alternatives possible. The FEIS includes 7 Alternatives, each with different amounts of timber harvest, different constraints on method of harvest, and different amounts of additional wilderness study recommendations. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options to address the significant issues. All alternatives studied in detail provide for wildlife habitat improvement and erosion work, protection of water quality, and control of insect infestations. Timber management demonstration areas and progeny test areas are administrative types of activities which could occur under any of the alternatives.

## Alternative E

**146. The Forest Service should consider that Alternative E did not receive serious consideration**

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. All alternatives received

consideration by the responsible official. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

## Alternative F

**147. The Forest Service should clarify whether the comparison between the Preferred Alternative and the 1985 Plan is a comparison with the 1985 Plan as implemented or the 1985 Plan as projected**

One of the decisions made in Land and Resource Management Plans is the Allowable Sale Quantity of timber from lands suitable for timber production (36 CFR 219.16). This "ASQ" is a maximum limit based on the number of suitable acres, the productivity of these acres (in other words, how fast the trees grow), and constraints placed on timber harvest on these suitable lands. The ASQ for the 1985 Forest Plan was 33 million board feet and this is the figure used in Alternative F, the "No Action" Alternative. You are correct in asserting that the Forest has not been producing this level of timber harvest for the last several years. This was one of the Needs For Change identified in the Analysis of the Management Situation, which subsequently helped define the Purpose and Need for revising the current Jefferson Forest Plan. Amendments were made to the 1985 LRMP over the past 18 years and these amendments are reflected in Alternative F. However, the basic goals, objectives, standards, and land allocations of the 1985 LRMP did not change substantially over this time and the ASQ displayed in Alternative F reflects this.

Alternative F represents a continuation of the original Forest Plan. It includes projections of what could happen in meeting the desired conditions, goals, objectives, standards, and management prescription land allocations identified in the original Forest Plan. It is true that the implementation of the original Forest Plan has not met the original projections because of budget limitations, lawsuits, administrative changes in priorities, etc. Just as actual implementation of the original Forest Plan did not meet projections, it is just as likely that the actual implementation of the RLRMP may not meet all projections. This is why projections of outputs are not the decisions made in a Forest Plan. A Forest Plan only makes decisions on desired conditions, goals, objectives, standards, and management prescription land allocations. The projections are only used to provide some estimates of what the environmental effects might be as a result of management activities to meet those desired conditions, goals, etc.; and to provide a comparison of alternatives. In order to make all alternatives comparable, the “no action” or “current management” alternative also needs to be based on “projected” outputs, so it is based on the same set of implementation assumptions as all the other alternatives.

**148. The Forest Service should include an alternative that attempts to model the actual current management on the Jefferson National Forest**

We are required by the National Environmental Policy Act to include a "No Action" alternative. This is displayed as Alternative F in the EIS. While law, policy, and social changes have affected management of the Jefferson National Forest and amendments have been made to the 1985 LRMP, the basic goals, objectives, standards, and land allocations of the 1985 LRMP did not change substantially over time. Other Alternatives consider how to respond to these external changes in reflecting new goals, objectives, standards, and land allocations for managing the Jefferson National Forest. There is an infinite combination of Alternatives possible. The FEIS includes 7 Alternatives, each with different responses to these external changes in law, policy, and society. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options for what may constitute "current management" of the Forest.

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ALTERNATIVES

## Alternative G

**149. The Forest Service should consider that Alternative G did not receive serious consideration**

**150. The Forest Service should give serious consideration to Alternative G**

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. All alternatives received consideration by the responsible official. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

## Alternative I

**151. The Forest Service should explain how Alternative I came to be the preferred alternative**

The rationale for which alternative is selected is described in the Record of Decision which accompanies the Final EIS and RLRMP.

**152. The Forest Service should implement Alternative I**

**Because it best meets the multiple use objectives of the Forest Service**

**Because it protects the Appalachian Trail**

Thank you for your comments.

**153. The Forest Service should not implement Alternative I**

**Because the Forest Service ignored much of peer-reviewed research available through the agency's research branch**

**Because the alternative was overly influenced by environmental groups**

Alternative I was developed as one way to address the twenty significant issues. Many communities of interest were involved in its development through public meetings and workshops as described in Appendix A of the EIS. Our partners in Forest Service Research, the Forest Health Protection Unit in Asheville North Carolina, the U.S. Fish and Wildlife Service, Bureau of Land Management, universities throughout the South, and various State agencies also worked with us in developing and analyzing all alternatives throughout this process. The U.S. Fish and Wildlife Service will issue their Biological Opinion on the Final RLRMP and FEIS prior to the Record of Decision being signed. Biological Opinions are not issued on draft documents.

**Because it violates the Organic Act of 1897 and the multiple-use sustained yield act of 1960**

All alternatives developed in detail are consistent with the Multiple-Use Sustained-Yield Act, the Organic Act, the National Forest Management Act, the National Historic Preservation Act. Requirements for following these laws are discussed throughout Chapter 3 of the EIS. The Record of Decision specifically addresses how the Selected Alternative is consistent with these laws.

**Because the proposed plan goes well beyond known natural resource science and jumps into speculative, subjective areas of human values and visions**

Goals, objectives, and standards for managing and/or protecting Heritage Resources, Aquatic Resources, and the JNF transportation system are found in Chapter 2 of the RLRMP, along with standards for protecting those resources. Existing Forest Service policy, manual and handbook direction for protecting archeological sites and other resources does not need to be repeated in the RLRMP.

**Because the alternative does not emphasize the important role of the transportation system**

The RLRMP is designed to avoid and minimize effects on aquatic resources through

the forest standards and the riparian corridor management prescription. We agree that roads are a valuable asset and needed for forest management. A RLRMP does not make site-specific decisions on how each road in the transportation system should be managed. It is true that there will likely be an increase in roads (specified and temporary) over what has occurred in the past few years, but this will be less than the level associated with the original RLRMP. Also there are numerous mitigating measures that are put in place to ensure that environmental effects associated with temporary roads are minimized.

**Because the alternative violates a number of environmental laws**

The nature of forest planning is such that compromises have to be an integral part of developing a RLRMP. If all the publics and all the scientists agreed on what is the "right" way to manage a forest, then developing a RLRMP would be considerably easier. However, scientists do not agree, and the public has a wide range of wants, needs, and concerns with respect to the management of the JNF, as is evidenced by all the comments received. A major emphasis of Alternative I is to manage the forest ecosystems to meet the needs of the wide variety of wildlife habitats found on the national forest. This often includes active management to create those conditions. Forest health is another key component of this alternative. Within this alternative, 258,900 acres have been classified as "suitable for timber production" and periodic, scheduled harvesting activities will take place on these lands. For a majority of the other lands, "unscheduled" and "unplanned" harvesting activities may still take place in order to address wildlife and forest health needs.

**Because it emphasizes the thinning of overstocked stands, road building, and ATV use**

Thank you for expressing your views on this Alternative. All views were carefully considered during development and evaluation of the existing Alternatives. There is an infinite combination of Alternatives possible. The FEIS includes 7 Alternatives, each with different amounts of thinning, road construction, and ATV use. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options for addressing these issues.

**Because the alternative does not provide the active management necessary for forest and wildlife health**

We have no objective for early successional across the forest. But we have not acknowledged well the amt of early successional habitat created through natural processes. Add some to the successional forest analysis or discuss it in cumulative effects. The first comment below is very different from the second comment and should be split out. Concept of the second comment should be looked at and it will likely be brought up under wildlife. The possibility of using 10's need discussion.

**Because the focus of the preferred alternative is human compromise and consensus rather than forest health and scientific based natural resource management**

The rationale for which alternative is selected is described in the Record of Decision which accompanies the Final EIS and RLRMP.

**Because the alternative places too much emphasis on old growth**

Thank you for expressing your views on this Alternative. All views were carefully considered during development and evaluation of the existing Alternatives. There is an infinite combination of Alternatives possible. The FEIS includes 7 Alternatives, each with different amounts of old growth. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options for addressing old growth.

**154. The Forest Service should justify the reduction of wilderness recommendations between the**

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**current Alternative I and the draft Alternative I released six months ago**
This comment does not apply to the Jefferson National Forest as no changes were made to wilderness recommendations between the August 2002 public meetings and the issuance of the DEIS and PRLRMP.

ALTERNATIVES

**155. The Forest Service should make a number of changes / modifications to the Jefferson National Forest's Alternative I**

ENVIRONMENT

The "design criteria" was used only for the process of initially developing Alternative I in the same way as themes were used to develop the other alternatives. The primary design of Alternative I was for it to change and evolve as citizens worked together through public meetings and workshops. As a result of this collaboration, some changes to Alternative I (most notably the management prescription 10B) deviated from the initial design criteria.

# ENVIRONMENT

## ENVIRONMENTAL VALUES

**156. The Forest Service should protect forests and the environment.**

**For future generations**

**For solitude and peace**

**For aesthetics**

**To provide benefits for health, well-being, and quality of life**

**Because the American public wants forests protected**

**To prevent environmental effects for the enrichment of a few**

**Because every acre in the South and East is precious**

**Because ecological protection and restoration is the highest and best use**

**To prevent fragmentation and preserve large, contiguous, forest areas**

**Because the value of plants, animals, and recreation is greater than the commercial value of natural resources**

**To provide clean air and water**

**To minimize the negative effects of development**

**To fulfill governmental responsibilities**

**To fulfill agency responsibilities**

**For recreation**

We agree, this is an important component of our mission. How protecting forests and the environment translates into management of the Forest depends on each individual's perspective, however. People's values for the JNF were carefully considered during development and evaluation of the seven alternatives. Twenty significant issues which included the wide range of desires, wants, needs, and concerns about future management of the Forest drove development of the alternatives, each with different combinations of responses to these issues. The challenge is to try to find the appropriate level of management that will best address all these issues. The Record of Decision explains which alternative does the best job of maintaining and enhancing the special values the Jefferson has to offer for future generations.

**157. The Forest Service should manage biodiversity in an ethical and effective manner.**
Because only nature can build forests

Because the management of species at selected levels cannot be separated from the remainder of the biota

Because natural ecological processes cannot be addressed solely in local project terms

**158. The Forest Service should protect all native wildflowers.**

**159. The Forest Service should protect mushrooms, molds, and lichens.**

We agree. Ethical management of the environment is at the core of our mission to care for the land and serve people now and for future generations. The effects of implementation of the alternatives on biodiversity are disclosed in the DEIS, chapter 3, through discussions of effects on the biological environment.

**160. The Forest Service should protect rare native species.**
Because of the importance of biochemical information to future generations

NFMA requires maintaining biodiversity and we will. See additional comments under the Biological Elements section for more specifics.

**161. The Forest Service should manage forests to create a diversity of successional stages, stand structures, and species.**
To provide economic benefits

To provide deer habitat

We agree. This is an important component of our mission. The RLRMP identifies the desired conditions to be achieved, and the EIS explains the projected outputs and activities needed to meet those desired conditions, along with the economic and environmental effects of those projected outputs and activities. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**162. The Forest Service should give priority to threatened and endangered species over commercial resource industries.**

Under the Endangered Species Act (ESA), We are required to give priority to maintaining and enhancing habitat and populations for listed species. Compatibility between compliance with ESA and other uses is site-specific to the particular species and the type of other use(s). Site-specific analysis will examine the compatibilities and conflicts between these uses and the ESA.

## PHYSICAL ELEMENTS

### Physical Elements (General)

**163. The Forest Service should specify strong, numerical, nondiscretionary standards and monitoring requirements to protect watersheds, soils, and air.**

Standards that protect watersheds, soil, and air are specifically articulated in the Plan. See Revised Plan chapters 2 and 3. Monitoring is also provided. See Revised Plan chapter 5.

**164. The Forest Service should provide more detailed information on the effects of resource management activities.**
On soil and aquatic resources

The commenter is asking for an analysis of the impacts of management caused landslides on aquatic resources. Unlike sediment from surface erosion, landslides are not an expected or predicted result of ground disturbing activities when PRLRMP Standards are applied. Forest-wide Standard FW-209 states: Locate,

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design, and maintain trails, roads, and other facilities and management activities to avoid, minimize, or mitigate potential geologic hazards. Management activities include timber harvest and roads. Geologic hazards include landslides. Landslide hazard potential can be identified and addressed in project plans. When management related landslides do occur, they represent a failure to fully comply with this Standard. It is unreasonable to model and disclose the effects of not complying with Standards.

On water quality

We have done additional analysis for the cumulative effects on water quality and aquatic resources, including changes to the WHI process. The commenter misquotes the DEIS in the statement: {The DEIS even admits that "Incrementally, the adverse effects of Forest Service activities would accumulate to levels that threaten the viability of aquatic species". (DEIS at 3-197). The sentence is actually on DEIS page 3-192 and, in the context of why a cumulative effects analysis should be done, states: "Incrementally, the adverse effects of Forest Service activities could accumulate to levels that threaten the viability of aquatic species".

## Soils and Geology

**165. The Forest Service should provide greater protection of soils.**

The PRLRMP recognizes the importance of soils and provides descriptions of soil characteristics in the DEIS. Standards are developed to provide protection for planned management activities. Soils standards are found in various resource sections of the draft plans and forest wide standards. Site-specific analysis will be conducted at the project level and further protection provided as needed.

A new Forest Objective to protect soil productivity has been added to Chapter 2 of the Draft PRLRMP and there are approximately 21 different standards and objectives to protect soil resources in the PRLRMP. With these and monitoring the implementation and effectiveness of mitigations and standards, we feel the soils on the Jefferson will be protected with any alternative selected. Appendix G of the Draft PRLRMP has seven monitoring items regarding soils.

**166. The Forest Service should prepare quality and detailed soil inventories, baseline conditions, and site-specific analysis and mitigation measures.**

To make informed decisions that comply with the National Forest Management Act

To present soils data to the public

To support best management practices and provide evidence that site-specific mitigation measures are effective

To provide appropriate monitoring

To implement appropriate mitigation measures

To demonstrate knowledge of site-specific soils and their properties

To based objectives on baseline conditions

Because threshold values are no longer acceptable

To take a “hard look” at soils

To evaluate how actions will affect soils directly, indirectly, and cumulatively

The Forest has a quality, detailed soil resource inventory that is continually updated and improved in cooperation with the NRCS. A description of baseline soil conditions and characteristics is provided in the Soils section of Chapter 3 in the DEIS. Site-specific analysis and mitigation measures are evaluated during project-

level environmental analysis.

Appropriate soil information and other resource date were used in the DEIS to estimate how each Alternative affected soil productivity, which complies with the NFMA.

Appropriate mitigation measures will be determined at the project level, based upon site-specific soil conditions and the Forest's soil resource inventory for a project area. Implementation of project mitigation measures and Draft PRLRMP Standards will be determined by monitoring, as described in Appendix G of the Draft PRLRMP. Appendix G of the Draft PRLRMP has seven monitoring items regarding soils.

Direct, indirect and cumulative effects are described in Chapter 3 of the DEIS. Cumulative effects from past management activity is shown in Table 3-3 of the DEIS. These are sufficient for PRLRMP level analysis. Site-specific soil properties, analysis and mitigation measures are done at the project level.

PRLRMP management objectives are designed to be general statements of direction. We feel we have considered soil baseline conditions and past management activities in Chapter 3 of the DEIS sufficiently to determine if Draft PRLRMP objectives are appropriate.

The only threshold value used in the PRLRMP, the DEIS and in site specific analysis for impacts to soils is Standard FW-3 in Chapter 2 of the PRLRMP. This Standard was used in the DEIS and will be used in site specific project environmental analysis to determine effects to soil productivity. We feel the 85% standard in FW-3 of the PRLRMP is adequate protection and it complies with FSH 2509.2.2 Region 8 supplement on Soil Quality Standards, effective July 29, 2003. Site visits, soil inventories and cumulative effects from past actions will be used to evaluate site specific project proposals, as well.

**167. The Forest Service should analyze and document the effects of roads and timber harvest on soil productivity and sedimentation.**

To include heavy trucks

We feel heavy truck use on roads has been adequately addressed by estimating sediment produced by roads for each alternative in the Water Resource section of Chapter 3 in the DEIS and also, Forest-wide Road Standards (FW-223, 224).

**168. The Forest Service should not remove organic layers, topsoil, and root material.**

FW-3 in Chapter 2 of the PRLRMP does not contain the words "severely eroded". Some proposed management activities in the PRLRMP involve removal of organic layers, topsoil and root material (soil displacement). These activities include construction of roads, fire lines, log landings, trails, gas wells, etc. The effect of soil displacement is an impact that is considered in detail on a site-specific basis as part of the required environmental analysis documentation for proposed Forest projects. We feel the 85% standard in FW-3 of the PRLRMP is adequate protection and it complies with FSH 2509.2.2 Region 8 supplement on Soil Quality Standards, effective July 29, 2003.

**169. The Forest Service should disclose the percentage of existing detrimental soil disturbance from past activities.**

A description of baseline soil conditions and characteristics is provided in the Soils section of Chapter 3 of the DEIS. Cumulative effects from our past management activity is shown in Table 3-3 of the DEIS. This table includes past effects from roads, trails, timber harvests, prescribed burning, recreation development, mineral development and grazing.

**170. The Forest Service should modify the wording of FW-3.**

FW-3 in Chapter 2 of the PRLRMP has been changed to "...85% of the activity area."

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Activity areas are areas of potential soil disturbance that will be expected to produce biomass in the future i.e. timber harvest units, log landings, prescribed burn areas, the corridors of temporary and skid roads. Activity areas will be smaller in extent than project areas.

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**171. The Forest Service should analyze and document the effects of roads and timber harvest on land slides.**

Thank you for your comment. Additional discussion has been added to the EIS.

**172. The Forest Service should protect underground resources.**

Because they are affected by clearcutting, runoff, and pollution

Thank you for your comment. The RLRMP has standards to protect caves and underground resources.

## Karst/Cave and Mine Resources

**173. The Forest Service should write a cave management plan.**

To identify cave locations

To identify water recharge areas

To identify buffer zones and constraints to management actions

To identify ecological needs

Several caves have been designated significant according to the Federal Cave Resources Protection Act of 1988 (FCRPA) and Forest Service Policy in the Final RLRMP. Caves are discussed in Chapter 2, Forestwide Direction, Rare Communities. Management plans for specific significant caves may be prepared during plan implementation where needed to meet requirements of the FCRPA.

The FCRPA specifically protects the location of significant caves.

**174. The Forest Service should protect cave and mine resources and any species that inhabit these sites.**

To include gas exploration and development

Prior to drilling wells on the Forest, the state and federal government review the proposed drilling plans in light of known caves, known mines and known karst features. This review is conducted in order to avoid sedimentation, pollution, and physical breach into subsurface voids. It is in the operators interest to avoid subsurface openings. If voids are encountered during drilling, operators are required to seal the void. See also Response #173.

## Air Quality

**175. The Forest Service should address the effects of acid deposition.**

We did address it in the research needs (risk assessment and sampling of sensitive soils), we did talk about it under aquatics, and with working with regional partners and agencies, need to check the quote, may need to add some more since it does affect aquatics

**176. The Forest Service should better analyze the levels of sulfur compounds.**

See DEIS Chapter 3, Air Resources section. Additional language in section on sulfur deposition section expands on effects to resources. Our role in promoting clean air is covered in Goal 21 and Forestwide Standards 175 and 176. We do not enforce air laws and regulations; this is the responsibility of the state and EPA.

**177. The Forest Service should state in forest plans that management activities will not result in deterioration of air quality.**

To include insignificant contributions

To include significant deterioration

We have added a new standard to the RLRMP: "Prescribed burning can be conducted in, or adjacent to, counties with forecasted high Air Quality Index (AQI Orange or higher) only if meteorological conditions ensure that smoke will be carried away from the high AQI area." to further protect air quality. See also PRLRMP Goal 18 and Standards FW-008, FW-141, and FW-142.

**178. The Forest Service should contact the Department of Environmental Quality prior to conducting prescribed burns.**

To document reasons for noncompliance in air quality

Districts currently notify the appropriate VDEQ Regional office prior to burning. Coordination between VDEQ, VDOF and Forest Service will be addressed in the Fire Management Plan and the Smoke Management Program.

**179. The Forest Service should moderate the particle emissions potentially caused by prescribed burning of forest vegetation.**

See the PRLRMP Forestwide Standard FW-141 on using best available smoke management practices. Also addressed in DEIS page 3-22 under Air Resource section. Note the we modified language on air quality in Fire section of DEIS to better explain smoke management and directed readers back to the Air Resource section for more information. Smoke management will be addressed in more detail in the Fire Management Plan.

**180. The Forest Service should specify air quality standard in the forest plan to restrict prescribed burns on days with high air quality index measures.**

We added a new standard to the Final RLRMP in response to this comment: Prescribed burning can be conducted in, or adjacent to, counties with forecasted high Air Quality Index (AQI Orange or higher) only if meteorological conditions ensure that smoke will be carried away from the high AQI area."

**181. The Forest Service should update data for PM 2.5 and continue to address PM 2.5 emissions from prescribed burns.**

Because PM 2.5 is linked to respiratory and heart problems and premature deaths

To include PM 2.5 generation in the state implementing plan

Because the Forest Service has an obligation to protect citizen's health

The FEIS was updated to reflect the most recent monitoring data results, 2000-2002.

## Water Resources

**182. The Forest Service should protect watersheds.**

To comply with laws, regulations, and directives

To ensure water availability during drought

To protect the water supply for an increasing population

To provide drinking water, water-based recreation, and flood control for Virginia

The PRLRMP goals, objectives, and standards that protect watersheds are designed to result in protection of water quality for all beneficial uses including drinking water and recreation as appropriate for each watershed.

**183. The Forest Service should protect streams.**

The PRLRMP protects not only perennial and intermittent streams, but also channeled ephemerals streams to a higher degree than previously seen in the

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Southeast. It does this by establishing riparian corridors as described in Prescription 11 and Standards for channeled ephemeral streams (FW-9 through FW-29).

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**184. The Forest Service should protect water quality.**
For human survival

Because of the effects of sedimentations on nongame aquatic species

The effects of management (including sedimentation) on aquatic species will be monitored using aquatic macroinvertebrates (Objective 3.01, PRLRMP page 2-5) and wild trout as an aquatic MIS (PRLRMP page 2-9). Sedimentation in streams in watersheds where projects are occurring will be measured annually using pebble counts, RSI, and percent fines (Monitoring plan, PRLRMP, page G-8). The Forest Service required by law to protect water quality for all beneficial uses including humans.

**185. The Forest Service should address hazardous and solid waste issues and pollution prevention in the forest plan.**
Our management of hazardous and solid waste issues follows the requirements of State and Federal Laws and Regulations.

**186. The Forest Service should use limestone aggregate to mitigate acid deposition.**
Scientific research has concluded that limestone aggregate does not have the surface area to dissolve at a rate that would provide adequate buffering potential to our stream systems. When liming is conducted it is done with sand size particles that collectively have the surface area to do the job.

**187. The Forest Service should not use liming when there are potential negative effects to threatened and endangered species.**
We agree. We will not modify the standard as proposed; however, we will not proceed with a liming project if it will have negative impacts to threatened and endangered species.

**188. The Forest Service should monitor sedimentation.**
Sedimentation in streams in watersheds where projects are occurring will be measured annually using pebble counts, RSI, and percent fines (Monitoring plan, PRLRMP, page G-8).

**189. The Forest Service should identify the impact of increased sediment on species in light of the increases from all sources in the watershed.**
Because minor increases in sediment could create significant cumulative effects to distressed, non-producing populations

**190. The Forest Service should not allow road building and timber harvest on steep slopes even using low impact techniques.**
Because of the effect of erosion on surface water

The effect of road building and timber harvest on surface water depends on a number of site-specific factors including geology, soils, and distance to streams. These are more appropriately addressed at the site specific level of analysis.

## WATERSHED CONDITION

**191. The Forest Service should designate high priority watersheds to receive special protection.**
Because there is no accountability and expected results for watershed protection

Because timber harvest receives priority

Priority watersheds are identified in the PRLRMP in Table 2-1. As stated on page 2-

2, these watersheds will be targeted for additional inventory and monitoring. Opportunities will be sought to work collaboratively with other landowners in the watershed to maintain and restore aquatic habitat.

**192. The Forest Service should manage watersheds under 9.A.3. or 9.A.4, as recommended, and follow regional guidance to develop management standards.**

We have allocated a number of areas to Management Prescriptions 9A3 and 9A4 in the PRLRMP. Additional areas were allocated to 9A4 in the Final RLRMP to protect the James spinymussel. See Response #96 regarding following regional guidance.

**193. The Forest Service should prohibit clearcutting, development, and road building In community watersheds**

The PRLRMP states (3-149) that low intensity commercial timber harvest is appropriate in Source Water Protection watersheds. Clearcutting is not low intensity harvest and would not be allowed. Any road building that might occur will require a watershed-scale roads analysis (9A1-022) and will be managed as closed to motorized public travel (9A1-023).

**194. The Forest Service should evaluate the effects of timber harvest methods on water retention, and manage forests for water retention.**

**Because water retention must be a high priority due to drought**

A wealth of scientific research is available and shows that timber harvest increases water yield; especially during the summer growing season.

**195. The Forest Service should identify and monitor indicators of watershed health and species viability.**

**To provide a legally defensible monitoring program**

**To provide species with sufficient distribution**

**To provide specific and clear criteria for monitoring**

The effects of management on aquatic species will be monitored using aquatic macroinvertebrates (Objective 3.01, PRLRMP page 2-5) and wild trout as an aquatic MIS (PRLRMP page 2-9). Other monitoring items are listed in Appendix G.

**196. The Forest Service should specify requirements to conduct a watershed analysis prior to initiating site-specific project planning, and stipulate the framework for the analysis.**

**To ensure that science proceeds planning and that analyses focus on resources**

**To include a close look at habitat to sustain viable species populations**

**To include criteria based on watershed function, ecosystem processes, and conservation biology**

Priorities for conducting smaller scale watershed analyses have been added to Objective 1.02 in the PRLRMP. Watershed Analyses are conducted by the forest as needed and where it is determined that a watershed analysis should be completed to develop a project. Frameworks recommended for the watershed analysis include "Ecosystem Analysis at the Watershed Scale" and "Hydrologic Condition Analysis".

**197. The Forest Service should implement watershed restoration consistent with "Forest restoration principles and criteria."**

The referenced document addresses forest restoration - not watershed restoration.

## WATERSHED ANALYSIS

**198. Ensure that the effects analysis provides useful information to the decision maker and the public**

The WHI (renamed Watershed Condition Ranking, WCR) includes past, present, and future logging, oil and gas development, and road development. Sedimentation was

modeled by the activities proposed in each alternative. If the change in sediment rates in any alternative fell within the range of tolerance determined by the species-sediment relationship, the effect of the alternative did not change. The purpose of the Watershed Health Index and associated analyses was designed to identify large-scale attributes that may contribute to maintenance of aquatic systems. Further, the relationship between the proportional increase in sediment and endemic fish species is consistent with current scientific thinking related to the dynamic nature of species response to disturbance (i.e. the ranges of generalist species will expand as those of specialists contract). It is reasonable to assume that changes in the proportion of endemics accompanies disturbance in the watershed. However, in response to comments the WHI has been modified and cutoffs based on forest service ownership, riparian land use and riparian road density have been removed. The process is referred to as the Watershed Condition Ranking to reduce confusion.

Different regions and drainages support different levels of endemism as indicated by least-disturbed reference conditions. Although data from all southern Appalachian forest were not used to develop the model, the data was stratified by physiographic province and based on species described as highland endemics (those that evolved in high elevation conditions). Therefore, the ecological traits that make the species used in the analysis sensitive to disturbance should be similar to other highland endemics. A subsequent model, using data from Virginia, supports this hypothesis.

**199. The Forest Service should use watershed analysis methodology published in "Ecosystems analysis at the watershed scale."**

Many of the elements outlined in this publication were utilized in the watershed analysis procedure that was done during the planning effort. Chapter 4 of the PRLRMP summarizes the results of that procedure.

**200. The Forest Service should specify actions and timelines for conducting watershed assessments and analysis.**

Watershed assessments and analysis are excellent tools for identifying priority watersheds, and programming restoration work. Assessments are also useful in land management allocations and in the development of prescriptions. Broad scale watershed analyses were completed by each forest to assess watershed condition and vulnerability. More detailed watershed analysis will be completed prior to project implementation as needed. Priorities for watershed assessments have been added to Objective 1.02 in the PRLRMP.

**201. The Forest Service should conduct a full cumulative effects analysis and discard results and conclusions based on the watershed health index and associated analyses.**

**Because accuracy of the model is reported to be plus or minus 50%**

**Because all cumulative effects analysis rests on the sediment model's estimates**

**Because any analysis and models must analyze and consider interannual variability related to weather and associated factors**

**Because data adjustments were made without monitoring of actual conditions**

**Because data collection and analysis exhibit malfeasance**

**Because Direct, Indirect, and Cumulative Effects are ignored**

**Because interannual variability related to weather and associated factors will generate cumulative effects**

**Because more information is needed concerning Cumulative effects**

**Because the conclusions of the Watershed Health Index and cumulative effects analysis are a misapplication of science**

**Because the cumulative effects analysis Does not consider potential impacts to water quality and aquatic habitat beyond sediment yields**

**Because the cumulative effects analysis does not consider the effects of increased sediment on mussels and other species**

**Because the cumulative effects analysis does not provide useful information**

**Because the cumulative effects analysis fails to conduct analysis at the sub-watershed scale**

**Because the Forest Service must consider all effects of past and future activities**

**Because the Forest Service relies on inter annual variability data collected from a single area**

**Because the underlying analyses are fatally flawed with false assumptions, misinterpretations, and unsupported conclusions**

**Because the Watershed Health Index does not provide analysis by management activity and alternative**

**Because the Watershed Health Index is not valid**

**Because the Watershed Health Index masks potentially significant effects**

**Because watershed selection and sampling methods are questionable**

**Because watersheds and fish species within the sample were not representative across the Southern Appalachians, nor for specific location or species**

We have chosen to address cumulative effects on aquatic species with the watershed condition ranking because it is the most likely source of impacts from management activities, correlates to changes in endemic aquatic species populations, and is the best available science

1.0 is not the expectation because virtually no streams are composed of 100% endemics. It was never implied in Scott & Helfman (2001) that 0.5 was the point of being 'in balance'. Different regions and drainages support different levels of endemism as indicated by least-disturbed reference conditions.

The sediment model is a consistent, repeatable process that addresses the effects of management activities upon the aquatic environment.

Sediment was used to represent effects on water quality and the effects on associated beneficial uses because Forest Service activities predominately (and almost exclusively) produce sediment.

The relationship between the proportional increase in sediment and endemic fish species is consistent with current scientific thinking related to the dynamic nature of species response to disturbance (i.e. the ranges of generalist species will expand as those of specialists contract). It is reasonable to assume that changes in the proportion of endemics accompanies disturbance in the watershed. The effects of increased sediment on mussels and other species were not analyzed because of the lack of appropriate data.

The purpose of the Watershed Health Index (WHI) and associated analyses is designed to identify large-scale attributes that may contribute to maintenance of aquatic systems. Further, the relationship between the proportional increase in sediment and endemic fish species is consistent with current scientific thinking related to the dynamic nature of species response to disturbance (i.e. the ranges of generalist species will expand as those of specialists contract). It is reasonable to assume that changes in the proportion of endemics accompanies disturbance in the watershed. However, in response to comments the WHI has been modified to remove cutoffs based on Forest Service ownership, riparian land use and riparian

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road density. The process has been renamed the Watershed Condition Ranking to reduce confusion.

The WHI did provide analysis by alternative and included all soil disturbing management activities. However, in response to comments the WHI has been modified, removing cutoffs based on forest service ownership, riparian land use and riparian road density. The process has been renamed to the Watershed Condition Ranking to reduce confusion.

The Watershed Health Index was replaced with the Watershed Condition Ranking (the relationship between locally adapted species and sediment).

The model has been reanalyzed for the FEIS to use fish data from Virginia.

**202. The Forest Service should provide justification for the use of a standard sample of 17% of watersheds.**

**Because this sample size appears to be an arbitrary cutoff**

This has been dropped. Forests will address all watersheds that contain Forest Service lands.

**Because the value of watersheds is priceless**

Thank you for your comment.

**Because watersheds are fragile and the plan provides insufficient aquatic conservation**

Healthy watersheds are robust and resilient to natural disturbance. The PRLRMP contains a number of Objectives and Standards that are designed to protect all watersheds on the Jefferson National Forest and maintain their health.

**By reducing timber harvest and roads**

The levels of timber harvest and roads in the PRLRMP have been developed in conjunction with a number of Standards and Objectives that are designed to protect watersheds.

**By restricting timber harvest and vegetation management**

The PRLRMP restricts timber harvest and vegetative management through a number of Standards that are designed to protect watersheds.

**For all forest management areas**

The Riparian Corridor prescriptions are designed and intended to protect aquatic habitats adjacent to all management areas.

## RIPARIAN AREAS AND WETLANDS

**203. The Forest Service should implement requirements that protect all streams and surface waters within national forest boundaries.**

Federal, State and local laws (i.e. NFMA, Clean Water Act) require that aquatic resources, streams and surface waters be protected. Forest plans protect aquatic resources by identifying streams, their beneficial uses and developing standards, which protect those resources during management activities. Standards are found in the Riparian Prescription and forest wide standards. Further protection will be provided as needed at the project level.

**To avoid effects and state permit requirements**

The Riparian Prescription, forest-wide channeled ephemeral standards, and 9A1, 9A2, 9A3, and 9A4 prescriptions were developed to maintain and restore healthy aquatic resources. All state laws and relevant permits will be followed.

**204. The Forest Service should include best management practices in the final plan to direct management activities.**
BMP's are included by reference in FW-1 page 2-5 PRLRMP.

To minimize effects on riparian areas and aquatic habitats

The Revised Plan will meet or exceed BMPs (standard FW-1, Plan page 2-5). Site-specific projects will acquire the necessary permits.

**205. The Forest Service should better protect riparian areas.**
By limiting roads in these areas

Riparian corridors are protected in the PRLRMP. See management prescription 11. We have added a standard regarding limiting roads.

**206. The Forest Service should use the "Riparian forest handbook 1: Appreciating and evaluating stream side forests" when analyzing effects on riparian areas and developing restoration plans.**
Thank you for your comment. Many scientific books and articles were used to develop the Riparian prescription to benefit an array of species.

**207. The Forest Service should state that sensitive riparian areas will be protected from roads, grazing, weeds, and heavy equipment.**
Riparian corridors are protected in the PRLRMP. See management prescription 11.

**208. The Forest Service should adopt the original interim standards that protect streams**
Because they would reduce timber harvest and better protect riparian areas

**209. The Forest Service should ensure that appropriate research is integrated into the PRLMP for example, research related to the effects of management activities in land areas adjacent to riparian zones and their influence on the maintenance of inherent functioning of the riparian zone**
Many scientific books and articles were used in the preparation of the Revised Plan and the effects analysis for the EIS; the bibliography for the EIS is not intended to be an exhaustive literature search.

**210. The Forest Service should rewrite forest wide goals, objectives, and standards to fulfill requirements of their respective classifications and criteria, and to implement recommendations.**
Because managers are not expected to produce outcomes

Because objectives do not meet the requirements for objectives

Goals, objectives and standards were developed that respond to issues and concerns for the protection, enhancement and restoration of riparian areas, perennial, intermittent and ephemeral streams. Forest wide standards were developed as well as Riparian Corridor specific standards. Goals, objectives and standards were reviewed and are appropriate.

**211. The Forest Service should not rely on best management practices to protect water quality.**
Riparian corridors are protected in the PRLRMP, see management prescription 11. PRLRMP standards exceed state BMPs.

**212. The Forest Service should modify riparian standards to consider more factors than only large woody debris needs.**
The management prescription 11 standards do consider more factors than LWD, including timber harvest, grazing, roads, and recreation.

**213. The Forest Service should specify and explain the limits of acceptable change for riparian resources.**
Limits of acceptable change is a process specific to wilderness areas and is not used in the PRLRMP in regard to riparian corridors.

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**214. The Forest Service should specify that riparian corridor will be managed to benefit "riparian-associated species"**

Thank you for your comment. Riparian corridors are managed to achieve the Desired Condition.

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**215. The Forest Service should allow riparian areas and watersheds to succeed to woodlands.**

Riparian corridors are managed to achieve the Desired Condition.

**216. The Forest Service should specify restoration of forest habitat within the riparian area as the primary goal of the riparian prescription.**

Riparian corridors are managed to achieve the Desired Condition. Goal 2 calls for the maintenance and restoration of riparian ecosystems.

**217. The Forest Service should specify that fire fighting activities will not occur within 100 feet of threatened and endangered species waters; or within riparian corridors, whenever possible.**

Because of effects on aquatic and riparian species

Wildfire and prescribed fire activities are limited in the riparian corridor to minimize impact to riparian resources and values (see standards, prescription 11). The riparian corridor will generally be between 100 to 150 feet from a perennial stream and 50 to 100 feet from an intermittent stream (Appendix C).

**218. The Forest Service should prohibit livestock permittees from allowing livestock to damage riparian areas, wetlands, and streams.**

**219. The Forest Service should specify that livestock grazing and watering will be prohibited in riparian waters and riparian buffers adjacent to waters supporting threatened and endangered species.**

Riparian corridors are protected in the PRLRMP. Livestock and grazing are addressed in management prescription 11. Threatened and endangered species are protected under ESA.

**220. The Forest Service should actively manage riparian corridors.**

To benefit a variety of wildlife

Timber harvesting activities may occur in Riparian Corridors (management prescription 11) when this tool is useful to maintain, restore or enhance riparian functions and values and to meet the needs of riparian species. 36 CFR 219.27(c)(1) states that harvesting activities can occur on lands classified as not suited for timber production when such activities are necessary to protect other multiple-use values or are needed to meet forest plan objectives. In the Final Revised Plan, the core area of riparian corridors are designated as not suitable for timber production because it was determined that managing these lands for the purposes of having "regulated crops of trees … for industrial or commercial use" (36 CFR 219.3) was inconsistent with meeting the desired conditions of the core area. Outside the core area, the riparian corridor increases with increasing slope in order to intercept sediment, nutrients, and other materials while meeting the objectives of the adjacent management prescription. Outside the core area, the riparian corridor may be suitable for timber production consistent with the adjoining management prescription. Riparian corridors are managed to achieve the Desired Condition as stated in management prescription 11, which includes benefiting a variety of wildlife.

**221. The Forest Service should specify that a minimum of 10% of riparian areas will be maintained as early successional habitat in units 5-40 acres in size.**

To benefit ruffed grouse

There is a ruffed grouse prescription, 8.E.1, which allows for creation of early successional habitat while protecting the resources and values of the riparian corridor.

**222. The Forest Service should define "stream bank hardening" and allowable management techniques.**
Standards 4K1-002, 4K2-001, and 4K5-003 have been changed. "Streambank hardening" now reads "streambank stabilization."

**223. The Forest Service should construct crossing structures across streams.**
**To minimize disturbance to fish passage and stream hydrology**

PRLRMP standards address stream crossings and the passage of aquatic species.

**224. The Forest Service should provide standards and explanations regarding the construction of crossings.**
This comment was addressed in management prescription 11 and in Forestwide standards.

**225. The Forest Service should restrict all-terrain vehicle (ATV) use within riparian buffers except at designed stream crossings.**
**To avoid negative effects**

Riparian corridors are protected in the PRLRMP, see management prescription 11. ATV's are restricted to designated trails and stream crossings.

**226. The Forest Service should stabilize and rehabilitate eroded trails.**
Management Prescription 11 addresses this comment.

**227. The Forest Service should specify time-of-year restrictions for the installation and use of skid trail crossings in riparian areas and perennial streams containing threatened and endangered species. .**
This was changed so that management prescription 11 contains standards for time of year restrictions to protect aquatic species.

**228. The Forest Service should require restoration of skid trails in the riparian area within 24 hours of closure.**
Thank you for your comment. This standard is not reasonable or necessary.

**229. The Forest Service should specify that all equipment and materials be stored outside of riparian areas during construction projects.**
**To prevent unnecessary effects to aquatic systems**

We considered this, but felt that this was not always practical and would be better handled on a case-by-case basis.

**230. The Forest Service should specify that road placement within riparian corridors and waters supporting threatened and endangered species will be avoided, if possible.**
The riparian prescription limits roads in the riparian corridor to minimize impacts to streams. We included a standard addressing in-stream habitat improvements. In addition, stream-connected disturbance will be designed and implemented after consideration of the life-cycle requirements of federally listed aquatic species.

**231. The Forest Service should only allow stream crossings when no feasible alternative exists.**
Stream crossings in a managed forest environment are essential and are designed to minimize disturbance to the riparian area and aquatic resources. Standards in the Riparian Corridor (management prescription 11), forest-wide standards and contract specifications for road construction are developed to insure they do not adversely impact aquatic species.

**232. The Forest Service should address the use of timber harvest equipment in riparian areas.**
Forest-wide standards, including the channeled ephemeral zone, and riparian corridor standards address vehicle use and soil protection.

Corridor Definition and Width

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**233. The Forest Service should not allow interdisciplinary teams (IDTs) to establish their own objectives for riparian corridors.**

**234. The Forest Service should specify that interdisciplinary teams will determine riparian corridor widths based on a site-specific basis.**

**235. The Forest Service should specify that riparian corridors may be designated with larger widths than the minimum width standards, but not less.**

The PRLRMP allows the riparian corridor to be either greater or less than the standard widths based on site-specific interdisciplinary analysis, see management prescription 11.

**236. The Forest Service should establish riparian corridor standards that specify provisions to guide the construction, use, and maintenance of roads; and timber harvest.**

Because increases in road use can create negative effects, even when the amount of road remains constant

Because Reconstruction and maintenance can cause negative effects

To protect riparian functions and aquatic resources

Because land-disturbance activities can cause persistent negative effects

Because riparian corridors do not provide sufficient mitigation to ensure watershed health

**237. The Forest Service should establish a criterion of percent canopy cover rather than a set distance for riparian widths or amount of basal area.**

**238. The Forest Service should exceed the Commonwealth of Virginia's Best Management Practices for any timber harvest or management action within riparian corridors.**

**239. The Forest Service should establish minimum widths for riparian corridors with binding standards and guidelines.**

To provide consistent management across all Southern Appalachian National Forests

The PRLRMP protects riparian areas within the riparian corridor, see management prescription 11. The standards for management prescription 11 are more restrictive than state BMP's, and, therefore, exceed those BMP's. The PRLRMP, not project level IDTs, establishes objectives for the riparian corridor, but IDTs may vary riparian corridor width on a case-by-case basis, for example, to address the needs of a plant or animal species. The PRLRMP contains Forest-wide and management prescription 11 standards addressing both roads and timber harvest.

**240. The Forest Service should specify protection at the watershed scale with corridors that extend to the drainage divide.**

To focus on the whole watershed

To provide analysis of watershed-scale processes

To provide management standards for upslope conditions and actions

Protection is provided in the Revised Plan for streams, lakes, aquatic resources wetlands and floodplains (see management prescription 11). Riparian Corridor widths were based on research findings, monitoring data and current literature recommendations. Further protection will be considered and prescribed as needed when projects are developed.

**241. The Forest Service should specify that minimum corridor widths must be measured horizontally to the stream.**

Because horizontal measurement gives the best protection

Thank you for your comment. Forest-wide and management prescription 11 standards in the PRLRMP will protect the riparian corridor. On-the-ground measurements were used for convenience in the field, with the buffer increasing to account for the effects of increasing slope.

**242. The Forest Service should specify standards for protecting streamside management zones and fingers.**

**243. The Forest Service should designate secondary riparian zone buffers beyond the primary riparian zones.**

Because riparian areas are unlikely to retain integrity and resiliency if the watershed is negatively affected

To mitigate effects of management actions on land adjacent to the riparian zone

To protect species

To provide a buffer to sustain the core riparian buffer and support wildlife habitat

Riparian corridors are protected in the PRLRMP. See management prescription 11 for specific standards. Riparian corridors also capture much of the area that would be protected with SMZs. Where additional protection is needed, forest will implement SMZs (I.e. for steep slopes). Furthermore, State BMPs will be followed which specify SMZs for silvicultural activities.

**244. The Forest Service should expand riparian areas, riparian corridors, and buffer zones**

Because headwater streams and non-perennial streams are intensively affected by management actions

Because insufficient scientific literature exists to establish minimum buffer zones sufficient to protect threatened and endangered species

Because the literature suggests that wider buffers are needed for riparian-dependent species

Because the proposed riparian corridor standards are inadequate to protect aquatic systems

By establishing stringent standards, as recommended

To 300 meters

For multiple reasons

Riparian areas are determined on the basis of physical and biological characteristics (vegetation, soils, and hydrology). Riparian corridors (fixed buffers) are established to encompass the Riparian area. Where fixed widths do not capture the Riparian area, distances are adjusted.

**245. The Forest Service should reduce the widths of riparian zones.**

The Riparian Corridor (management prescription11) establishes a level of protection (through fixed riparian corridor widths) to maintain, restore and enhance riparian functions and values. Riparian corridor widths can be reduced when it is deemed necessary to manage for riparian values.

Wetlands

**246. The Forest Service should maintain and restore wetland communities.**

To benefit the biological integrity of riparian areas and buffers

Goal 2 of the PRLRMP (page 2-5) includes the restoration of wetlands. The Emphasis statement for the riparian corridor prescription calls for the maintenance and restoration of ecological processes and functions of the components of the corridor, and thus apples to wetland communities. Also, wetland rare communities are protected from adverse management actions in management prescription 11-013.

Channeled Ephemeral Streams

**247. The Forest Service should increase the size and protection of permanent and ephemeral streams.**

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Riparian corridors are protected in the PRLRMP. See management prescription 11. Channeled ephemeral stream zones are protected by Forest-wide standards.

**248. The Forest Service should analyze the benefits of managing ephemeral streams under the riparian prescription as compared to managing the streams for other resources.**

**249. The Forest Service should include ephemeral stream in the definition of the riparian corridor and set management standards.**
Because definitions in an appendix can be changed without a plan amendment

**250. The Forest Service should adopt the original definition of riparian corridor**
Ephemeral streams were included in the original definition of Riparian Corridors because of their connectivity to stream networks. Ephemeral streams however do not have riparian characteristics and therefore are managed and protected with streamside management zones. Because of their characteristics (i.e. periodic response to stream flow and uncertain identification criteria) specific guidance for management of ephemeral streams was appropriately developed at the forest level. Standards for managing ephemeral streams are included in forest wide standards.

**251. The Forest Service should explain the rationale for eliminating ephemeral streams from the riparian corridor, removing protection, and weakening prescriptions to protect and restore riparian ecosystems.**
Channeled ephemeral streams were separated from the riparian corridor (management prescription 11) because ephemeral streams do not have the physical or biological characteristics that fit the definition of "riparian". Protection for channeled ephemeral streams was not removed but rather moved to forest-wide standards. The change did not weaken protection of the riparian area but allowed for greater management options to tailor the standards to suit the conditions on the different national forests of the southern Appalachians.

**252. The Forest Service should define the ephemeral zone as a “bubble” or the drainage areas of streams, and protect the entire area.**
Thank you for your comment. The buffer zone at the "head" of the channeled ephemeral streams has been clarified. See also Response #251.

**253. The Forest Service should modify goal 2 to include ephemeral streams.**
Thank you for your comment. Channeled ephemeral streams are included in Goal 2.

**254. The Forest Service should specify buffer widths for channeled ephemeral streams.**
Channeled ephemeral buffer widths are defined in Forest-wide standards.

**255. The Forest Service should not restrict silvicultural activities around “ephemeral” streams.**
Because the practicality of management for these zones is questionable

Thank you for your comment. Silvicultural activities may occur around "ephemeral" streams. Standards however, are developed to reduce nonpoint source pollution from management activities and maintain ground stability since ephemeral streams are hydrologically connected to the stream system. Channeled ephemeral streams (those that show signs of scour) will receive some degree of protection. Ephemeral streams that do not show evidence of scour will not. Silvicultural activities are restricted only to protect the values and resources associated with channeled ephemeral streams.

**256. The Forest Service should clearly define ‘riparian area’ and ‘ephemeral stream’ by specifying how much water is required and how long water must be present.**
Riparian area and ephemeral stream are defined in Appendices B and C. Ephemeral streams are defined by short duration storm flows that occur as a direct result of storm precipitation. Actual flow amounts for ephemeral streams cannot be quantified or established.

# BIOLOGICAL ELEMENTS

## WILDLIFE

### Wildlife (General)

**257. The Forest Service should ensure that adequate information on species is provided for implementation of the Plan.**

**258. The Forest Service should not conduct any timber harvest and sale unless all existing species in the area are known.**

Unfortunately, habitat needs and distributions of many species in the southeastern United States are unknown. Until habitat relationships and species distribution are determined, we will use the best available information to determine management direction. The scientific community and the courts have recognized that the NFMA does not create a precise standard for the diversity of plant and animal communities, and the viability of species populations. In determining whether alternative management scenarios will maintain viable populations, absolute certainty is not possible, and analysis must focus on assessing risks. Numerous factors, which vary according to the characteristics of individual species and particular ecosystems, are considered in evaluating risk. The viability analyses for terrestrial and aquatic species are discussed in the DEIS, Chapter 3, Biological Environment with supporting information in Appendices E and F. These analyses have been reanalyzed in the FEIS based on comments received on the DEIS and scientific peer review. See also Response #51.

**259. The Forest Service should consider the cumulative effect of the proposed increase in forest edge on the forest and the effect of an increase in forest edge off the forest.**

The DEIS (3-110-114) discusses impacts of edge creation at the landscape level. See also Response #360.

### Fisheries and Aquatic Wildlife

#### AQUATIC WILDLIFE AND HABITAT

**260. The Forest Service should, as required by NFMA, implement a comprehensive aquatic conservation strategy**

**261. The Forest Service should establish a strong aquatic conservation strategy to comply with the Clean Water Act**

**262. The Forest Service should demonstrate regional leadership in implementing aquatic conservation and best management practices.**

**Because floodplain restoration areas occur on private property**

**To comply with the National Forest Management Act**

**263. The Forest Service should implement recommended actions to address aquatic conservation needs of the region.**

**264. The Forest Service should implement aquatic conservation and management direction.**

**To attain desired future conditions for the aquatic system**

**To fulfill federal duties to conserve and recover protected species**

**265. The Forest Service should specify land allocations, standards, guidelines, and planning processes, as recommended, for aquatic conservation areas.**

The Revised Plan provides a comprehensive aquatic conservation strategy designed to protect and conserve aquatic species through forest-wide direction, riparian corridor direction (management prescription 11), aquatic habitat areas direction (management prescription 9.A.4.), and identification of priority watersheds (see

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PRLRMP, page 2-3). In addition, the Forest has developed a Federally Listed Fish and Mussel Conservation Plan in collaboration with the U.S. Fish and Wildlife Service, and continues to work with the Virginia Department of Game and Inland Fisheries to protect and recover federally listed and sensitive aquatic species.

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**266. The Forest Service should incorporate direction, goals, objectives, and standards to address a whole watershed approach of aquatic conservation for recommended issues.**

The objective (1.03) to improve watershed conditions across 600 acres per decade as identified in the Watershed Improvement Needs Inventory includes restoration of degraded riparian ecosystems, which typically are of highest priority. The recommendations from the FWRBE team report are broadly incorporated into a number of standards and objectives. Reference watersheds have been included in the final PRLRMP. Source Water Assessments will be conducted in partnership with the Commonwealth of Virginia, which will have the lead in this effort. Watershed specific direction for each fifth code HUC watershed is outlined in Chapter 4. Watershed restoration areas are identified in the PRLRMP as management area 9. A.3. A standard has been added to the final PRLRMP that restricts construction of roads in riparian areas. Recreation use that may affect water quality is addressed in Standards 11-027 through 11-033.

**267. The Forest Service should collaborate with state agencies to further aquatic conservation goals**

Thank you for your comment. We do collaborate with state agencies to further aquatic conservation goals.

**268. The Forest Service should manage streams for wild species.**

Thank you for your comment. The desired condition for aquatic systems is to maintain populations of indigenous and desired nonnative species (PRLRMP page 3-170). Stocking of new nonnative species and stocking of previously unstocked areas is discouraged where it will adversely impact native aquatic species or communities (Standard 11-006).

**269. The Forest Service should consider the role of stressors on aquatic species**

Point source pollution, temperature, and altered stream flow were other stressors analyzed, in addition to sediment for aquatic species. These were addressed in the biological environment (DEIS pages 3-190 through 3-193) and aquatic viability analysis (DEIS pages 3-193 through 3-198). The process is documented in the process papers "Sediment Yields and Cumulative Effects for Water Quality and Associated Beneficial Uses" and "Aquatic Biological Resources". The aquatic viability analysis has been reanalyzed in the FEIS based on comments received on the DEIS and scientific peer review. See also Response #51 and Response #198.

**270. The Forest Service should conduct a meaningful analysis of the effects of road construction and maintenance on aquatic habitats.**

We do refer to a forest research project in our aquatics section. Do we need any editorial clarification?

**271. The Forest Service should address the effects of timber harvest on aquatic resources.**

The effects of timber harvest and associated activities on aquatic resources were addressed by alternative in the DEIS water resources section (DEIS pages 3-34 through 3-38) and in the biological environment (DEIS pages 3-190 through 3-193) and aquatic viability analysis (DEIS pages 3-193 through 3-198). The effects of vegetation management and erosion potential were modeled through the process documented in the paper "Sediment Yields and Cumulative Effects for Water Quality and Associated Beneficial Uses" and "Aquatic Biological Resources". The aquatic viability analysis has been reanalyzed in the FEIS based on comments received on the DEIS and scientific peer review. See also Response #51 and Response #198.

**272. The Forest Service should provide an accurate analysis of the effects of mineral, oil, and gas**

**extraction on aquatic resources.**
Analysis of the effects of federal oil and gas leasing (and associated actions) on aquatic resources was provided in DEIS pages 3-330 through 3-335. Existing mines were included in the cumulative effects analysis for this section. The Diamond and Serviess (2001) study referenced in this comment analyzed active and inactive coal mines and preparation plants within a riparian corridor defined as 200 meters wide (100 m on each side of the stream) and 2000 meters upstream from a given sampling site. This study found a negative relationship between coal mines in the stated area and habitat quality and fish communities. The proposed federal oil and gas leasing does not include a proposal for coal mines or preparation plants within National Forest lands, let alone the riparian corridor. The concern that the Forest did not accurately analyze coal mines in the riparian corridor as implied by citing this reference is meaningless and intentionally misleading.

**273. The Forest Service should implement a management plan that avoids and minimizes effects on aquatic resources.**
The Revised Plan is designed to avoid and minimize effects on aquatic resources through forest-wide standards, riparian corridor direction (management prescription 11), aquatic habitat areas direction (management prescription 9.A.4.), and identification of priority watersheds (see PRLRMP, page 2-3).

## FISHERIES (SPORT)

**274. The Forest Service should modify Standard FW 34 to allow the stocking of catchable-sized trout.**
We noted and considered your comment, and have made a change to that standard.

## THREATENED, ENDANGERED, SENSITIVE, AND LOCALLY RARE AQUATIC SPECIES

**275. The Forest Service should implement Prescription 9.A.4.**
**To benefit the Tennessee dace and candy darter**

The PRLRMP includes 3 areas with the 9A4 prescription (Lynn Camp for the TN dace, Wolf Creek for the TN heelsplitter, and Stoney Creek for the candy darter; all sensitive species). Stream reaches with significant populations of these sensitive species were included in this prescription to maintain a high level of awareness. We have added areas along Potts Creek and Craig Creek for the federally endangered James spinymussel in the Final RLRMP.

**276. The Forest Service should specify that clean water and gravel will be provided for streams inhabited by the Tennessee dace and listed mussel species.**
**To restore, maintain, and protect populations**

Thank you for your comment. The desired condition for all lands in the riparian prescription is to maintain the amount, distribution, and characteristics of aquatic habitat to support all life stages of desired aquatic species. In addition, habitat conditions contribute to the recovery of species under the Endangered Species Act.

**277. The Forest Service should specify that consultation will be conducted with biologists specializing in threatened and endangered species prior to constructing nonmotorized trails near waters supporting threatened and endangered species.**
Environmental effects and appropriate mitigation measures for site-specific projects are analyzed by an interdisciplinary team of specialists as required by the NEPA.

**278. The Forest Service should analyze the effects of plan management on threatened, endangered, and sensitive aquatic species; provide standards and guidelines for actual population monitoring; and limit mineral and gas activities to affect outcomes for imperiled**

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**mussels and fish.**
The effects of plan management on aquatic resources were addressed by alternative in the DEIS water resources section (DEIS pages 3-34 through 3-38) and in the biological environment (DEIS pages 3-190 through 3-193) and aquatic viability analysis (DEIS pages 3-193 through 3-198). The effects of management activities were modeled through the processes documented in the papers "Sediment Yields and Cumulative Effects for Water Quality and Associated Beneficial Uses" and "Aquatic Biological Resources". The aquatic viability analysis has been reanalyzed in the FEIS based on comments received on the DEIS and scientific peer review. See also Response #51 and Response #198. Mineral and gas activities are limited in the riparian corridor and are managed to minimize disturbance to riparian resources and values (PRLRMP page 3-174).

**279. The Forest Service should consult with the U.S. Fish and Wildlife Service, address protection and management of Federally-listed aquatic species within the forest plans, and implement recommended guidelines.**
Consultation with the U.S. Fish and Wildlife Service has been ongoing throughout the planning process. The U.S. Fish and Wildlife Service will issue their Biological Opinion on the Final RLRMP and FEIS prior to the Record of Decision being signed. A Federally Listed Fish and Mussel Conservation Plan has been developed with review and approval by the U.S. Fish and Wildlife Service as a way for the Forest to take an active role in the recovery of listed aquatic species.

**280. The Forest Service should better protect the black-sided dace.**
The Riparian Prescription, forest-wide channeled ephemeral standards, and 9A1, 9A2, 9A3, and 9A4 prescriptions were developed to maintain and restore healthy aquatic resources. Part of the desired condition for Riparian Corridors is to manage for habitat conditions that contribute to the recovery of species under the Endangered Species Act. In addition, there is a forest-wide objective to maintain a stable or increasing population trend for this species, since it is a federally listed species that is currently found on the Forest.

**281. The Forest Service should identify and specify critical watersheds for mussels and the James River spinymussel.**
The Forest added Aquatic Habitat Areas (9A4) for the James spinymussel along Potts Creek and Craig Creek.

**282. The Forest Service should coordinate with, and receive approval form, the Virginia Department of Game and Inland Fisheries to establish a mussel nursery.**
The mussel nursery proposal for Staunton Creek was dropped after recent surveys determined the habitat was unsuitable. Thank you for your comment.

**283. The Forest Service should establish concrete objectives for mussel recovery.**
The mussel nursery proposal for Staunton Creek was dropped after recent surveys determined the habitat was unsuitable. The effects of management on aquatic species will be monitored using aquatic macroinvertebrates (Objective 3.01, PRLRMP page 2-5) as a community based assessment of stream health. Recovery of federally listed mussels is outlined in their Recovery plans as established by the USFWS. Part of the desired condition for Riparian Corridors is to manage for habitat conditions that contribute to the recovery of species under the Endangered Species Act.

**284. The Forest Service should specify that it will monitor and protect mussels.**
**Because the Fish and Wildlife Service is delineating critical habitat for mussels**

Designated and proposed critical habitat for federally listed fish and mussels were considered in the Biological Opinion that was prepared for the FWS, and will be considered in the DEIS. The Riparian Prescription, forest-wide channeled ephemeral standards, and 9A1, 9A2, 9A3, and 9A4 prescriptions were developed to maintain

and restore healthy aquatic resources including mussels. The effects of management on aquatic species will be monitored using aquatic macroinvertebrates (Objective 3.01, PRLRMP page 2-5) as a community based assessment of stream health.

## Terrestrial Wildlife and Habitat

### GENERAL

**285. The Forest Service should protect wildlife habitat.**

The process of developing a Forest Plan and the accompanying Environmental Impact Statement is designed to ensure that care is taken to balance forest and wildlife management, to protect wildlife habitat and prevent population inbalances that could endanger both wildlife populations and the public.

**286. The Forest Service should manage forests to return wildlife to a natural state with biodiversity.**

For Long-term forest health

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. Alternative C, which was eliminated from detailed study, did not use timber harvesting in any management prescription. The rationale for dropping Alternative C from detailed study is explained in Chapter 2 of the EIS. The FEIS includes 7 Alternatives, each with different combinations of responses to the 20 significant issues. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options responsive to the significant issues. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**287. The Forest Service should specify details regarding the provision of large, contiguous, forested and remote areas for wildlife.**

By its nature, national forest land represents some of the largest blocks of contiguous forestland left on the landscape. For most species, the relatively small scale of disturbance imposed by national forest management does not significantly affect the value of these lands for species needing large blocks of forest. For example, see analysis for interior forest in Chapter 3 of the EIS. However, some species do require remoteness and lack of frequent disturbance from human presence. On the national forest, remote areas are provided by wilderness and backcountry recreation management prescriptions (1A, 1B, 12A, 12B, and 12C).

**288. The Forest Service should restore large carnivores and other animals, as recommended, where appropriate.**

**289. The Forest Service should specify strategies to attain healthy populations of elk.**

The Virginia Department of Game and Inland Fisheries and the West Virginia Department of Natural Resources has the responsibility to develop reintroduction programs of wildlife species not federally listed as threatened or endangered, such as large carnivores, bison and elk. The Forest Service works closely with these agencies to develop reintroduction programs when initiated, but the ultimate decision lies with these state agencies.

**290. The Forest Service should consider all species that rely on roadless forests or waters flowing from them.**

All species found on the Jefferson National Forest and their habitat requirements are considered in the EIS in Chapter 3. No species have been identified that rely on roadless forests or waters flowing from them.

**291. The Forest Service should analyze the species that may be harmed by thinning and group selection.**

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Effects of silvicultural practices such as thinning and group selection on Management Indicator species and PETS species are found in Chapter 3, Biological Environment, Terrestrial Species and their habitats, and Terrestrial Viability Analysis, of the EIS.

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**292. The Forest Service should recognize that 1,000 to 10,000 acre blocks of habitat types are project area size, not landscape level.**

Chapter 2, page 2-8 of the PRLRMP states: "Objectives are not stated Forestwide because most species will select habitat at a scale of 1,000 to 10,000 acres." This is merely explaining where habitat objectives are deployed in the PRLRMP and why. The DEIS, Chapter 3, Biological Environment discusses the Forestwide (or landscape level) effects analysis.

## MID-SUCCESSIONAL HABITATS

**293. The Forest Service should better analyze logging-fabricated habitat between 11 and 40 years old.**

A brief discussion of the value of the 11 to 40 year old age class, termed the sapling/pole successional stage is found at the bottom of page 3-98 of the DEIS. The discussion concludes that although this stage is of “the least value” to wildlife, it does provide cover for some species. However, this particular stage of development in the life of a forest community is important because of what follows. Eastern hardwood stands begin to produce significant amounts of hard mast at about age 40 and continue to produce adequate quantities of mast for about 60 years, but mast production begins to decline after about 100 years for the shorter lived trees and as long as 200 years for longer lived species such as white oak. Hard mast is a very important component for many wildlife species such as bear, squirrel, and turkey. Therefore, the age at which hardwood stands begin to produce adequate amounts of hard mast, especially upland hardwood stands dominated by oak species, is an important stage in stand development.

We recognize that hard mast production is highly variable between species as well as individuals of the same species. Forest communities, like teenagers, must travel through this age class on their way to maturity and peak hard mast production. Continuing the analogy, just as humans become less physically productive and eventually lose the ability to reproduce, so do trees decline and produce less and less hard mast as they approach old age status. Therefore, in order to optimize hard mast production, forested communities should be periodically renewed as they age and hard mast production declines. They necessarily move through an immature period as they grow to maturity and again reach peak mast production, before declining again and continuing the cycle.

Table 3-39 on page 3-100 of the DEIS discloses the existing percentages of forested acres within this successional stage by community type. The remainder of the effects analysis concentrates on several other successional stages because “[t]hey are the most relevant to describing important habitat conditions.” (DEIS, pg. 3-100). Table 3-159 on page 3-286 of the DEIS discloses the percentage of the forest within this pole-sapling stage in 2030. The Terrestrial Viability Analysis found on pages 3-149 through 3-167 addresses the NFMA requirement pertaining to viability; note that the sapling/pole successional stage is relatively unimportant in this analysis. Timber stand improvement treatments can indirectly increase the value of this stage through enhancing hard mast production, and creating vertical vegetative structure benefiting a variety of forest songbirds.

## EARLY SUCCESSIONAL HABITAT

**294. The Forest Service should exercise care in the relationship between forest and wildlife management.**
Because populations inbalances can endanger wildlife and the public

The process of developing a forest plan and the accompanying environmental impact statement is designed to ensure that care is taken to balance forest and wildlife management, to protect wildlife habitat and prevent population inbalances that could endanger both wildlife populations and the public.

**295. The Forest Service should expand early successional habitat.**
To benefit wildlife

Based on good science and to benefit wildlife

To benefit avian species and rare and common species

To provide forests 0-10 years of age to benefit songbirds

By allowing situations on the ground to dictate management

To manage forests for dependent species based upon sound science

To comply with the national forest management act and endangered species act

Types of early-successional habitat that we have addressed include early successional forests, open woodlands, improved pastures, permanent wildlife openings, old fields, maintained rights-of-way, and balds. Objectives within individual management prescriptions provide for early successional forests. Forestwide objectives provide for open woodland habitats. Desired conditions and standards for permanent wildlife openings are described in individual management prescriptions. Desired conditions for improved pastures, old fields, maintained rights-of-way, and balds are described in management prescriptions 7G, 8E6, 5C, 4K3, and 4K4 respectively. Early successional habitat calculations are described in detail in the background section for wildlife in Chapter 2 of the Revised LRMP. This discussion has been expanded and clarified from the PRLRMP.

**296. The Forest Service should increase percentage calculations for 8B Early successional habitat and 8E1 Ruffed grouse / woodcock habitat.**
To provide critical habitat for dependent game and nongame species.

To benefit grouse by doubling the prescription area and adding areas at least 5,000 acres in size.

**297. The Forest Service should, in objectives 1-3 (on page 3-112 of the Revised Plan) for managing areas under prescription 8A1 (mix of successional habitats), allocate more than a minimum of 4% to early successional habitats.**

**298. The Forest Service should specify 0-4% early successional mix habitats and 10-17% habitats 4-10% early-successional habitat.**
To meet plan goals for early-successional habitat

**299. The Forest Service should specify that 4-10% of acreage will be maintained as early successional forest.**

**300. The Forest Service should not create 4-5% of early successional habitat within forests.**
Because unnatural conditions will require continuous management

**301. The Forest Service should specify how the amounts of early successional habitat were determined and the reasoning used.**

**302. The Forest Service should not create early successional habitat.**
Because the forest survived for thousands and millions of years without being 'managed'

**303. The Forest Service should not encourage early successional objectives.**

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**304. The Forest Service should increase early succession goals in less restrictive prescriptions.**

**305. The Forest Service should provide additional opportunities for early successional habitat.**

**306. The Forest Service should justify the high percentages of early successional habitat in various management prescriptions.**

In a recent review paper by disturbance ecologist Craig Lorimer (historical and ecological roles of disturbance in eastern North American forests: 9,000 years of change. Wildlife Society Bulletin 2001, 29(2):425-439), Lorimer concludes: "deciding on the optimal amount of early successional habitat on public lands is a complex ecological and social issue that can be guided only in part by scientific evidence." The diversity of perspectives expressed in comments reflects the complexity of this as a social issue. To provide for this diversity of views, as well as a for a diversity of habitats, we defined four mixes or "options" of successional forest conditions to be assigned to specific portions of the national forest landscape (see definitions of options in the successional forests section of the DEIS, page 3-101). These options were allocated to the landscape through prescription assignments after considering a variety of factors, including successional habitat abundance and distribution across the forest, settings for other multiple uses, and legal and logistical constraints on management opportunity.

Alternatives D and F have the highest percentage of early successional habitat and Alternatives E and G have the lowest percentage. Alternative C which was eliminated from detailed study also had a very low level of early successional habitat. Comparisons between alternatives are discussed in Chapter 3 of the DEIS, pages 3-97 through 3-103. Many of the areas allocated to management prescriptions 8B and 8E1 are greater than 5,000 acres in size. Despite our recognition of the importance of early-successional forest habitat, the Jefferson National Forest is expected to continue to provide a successional forest mix dominated by late-successional forests (DEIS pages 3-101 through 3-103) under all alternatives, especially when compared to the mix found on private lands (DEIS page 3-99). The Regional Forester has identified in the Record of Decision which alternative provides the best balance in meeting the wide range of public desires evident in the comments. See also Response #287.

**307. The Forest Service should inventory and analyze early successional habitat.**

**308. The Forest Service should, in the DEIS, provide more analysis for early successional habitat.**

The DEIS (3-97 through 3-103 and 3-107 through 3-110) quantifies the differences in alternatives regarding early successional habitat. The Terrestrial Viability Analysis which includes species dependent upon early successional habitat begins on page 3-149 of the DEIS and is supplemented by additional information in Appendix E. The terrestrial viability analysis has been reanalyzed in the FEIS based on comments received on the DEIS and scientific peer review.

**309. The Forest Service should specify the species dependent upon areas composed of 4-16% early successional habitat.**

Appendix E (Terrestrial Species Viability) of the EIS identifies species which are dependent upon early successional habitat, that have viability concerns. This appendix has been modified in the FEIS based on comments received on the DEIS and scientific peer review.

**310. The Forest Service should better define the characteristics of early successional habitat.**

**311. The Forest Service should better define early successional habitat.**

The characteristics of early successional habitat are clearly defined on pages 2-8 through 2-9 of the PRLRMP.

**312. The Forest Service should take actions to create larger openings for early successional oak and oak / pine.**

To reduce wildfire threats and mitigate forest stagnation

Standard FW-113 on page 2-29 of the PRLRMP specifies the maximum opening size created by even-aged or two-aged regeneration harvests. 36 CFR 219.27(2)(d) specifies that even-aged regeneration shall not exceed 40 acres in our forest types and States. West Virginia State Law mandates a maximum even-aged size opening of 25 acres and we believe that voluntary compliance with this law is prudent. Because two-aged regeneration harvests tend to function ecologically similar to even-aged stands, we believe that these size limitations are reasonable for two-aged systems as well. The impacts of forest management on wildfire and forest health are disclosed in the DEIS pages 3-199 to 3-229.

**313. The Forest Service should better consider current and foreseeable conditions that may contribute to early successional habitat.**

Some commenters feel that analysis of need for early-successional forest habitat was deficient because we didn't make more effort to predict or account for the amount of early-successional forest created by natural disturbance. As described in the background section for wildlife in Chapter 2 of the Revised LRMP, natural disturbances that create early-successional forest patches of desired structure and size will be counted toward objectives for this habitat at the site-specific project level. It is certainly legitimate to consider how much of this habitat currently exists as a result of past disturbances when developing the alternatives for a project. See also Response #315.

Some commenters suggested that early-successional forest on private lands be used to meet objectives for such habitat. As described in the background section for wildlife in Chapter 2 of the Revised LRMP, presence of quality early-successional habitat on surrounding private land should be part of project-level analysis, and may lead to decisions to provide lower levels of this habitat on national forest lands. However, at this strategic planning level, private lands cannot be counted upon with certainty to provide these habitat conditions, nor will they be available to support the full spectrum of multiple uses associated with these conditions. In addition, regulations require that habitat be provided to support viable populations on lands covered by the LRMP, which does not include private lands. Despite the Revised LRMP's recognition of the importance of early-successional forest habitat, the Jefferson National Forest is expected to continue to provide a successional forest mix dominated by late-successional forests (DEIS pages 3-101 through 3-103), especially when compared to the mix found on private lands (DEIS page 3-99).

Current and foreseeable conditions that may contribute to early successional habitat are discussed in the environmental impact statement in the following sections: biological environment; major forest communities; eastern hemlock, pine and pine-oak, and spruce-fir, and forest health and protection; non-native invasive species, European gypsy moth, hemlock wooly adelgid, oak decline, southern pine beetle, and wildland and prescribed fire. See also Response #318.

**314. The Forest Service should better incorporate into the PRLRMP natural events that create early successional habitat.**

In a recent review paper by disturbance ecologist Craig Lorimer (*Historical and ecological roles of disturbance in eastern North American forests: 9,000 years of change*. Wildlife Society Bulletin 2001, 29(2):425-439), Lorimer states that predicting frequency of more severe natural disturbances (the kind that would created desired early-successional forest patches) is difficult because they are highly episodic and spatially heterogeneous. Lorimer goes on to state: "…the episodic nature of large natural disturbances creates a sort of 'feast or famine' environment that may subject early successional animal populations to erratic fluctuations…" Such feasts and famines may be especially extreme when looking at the smaller natural landscapes represented by national forests, surrounded by private lands that may be converted to nonforest. Successional forest objectives are

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designed to reduce the feast and famine swings for early-successional forest species, while providing ample habitat for mature forest species.

Natural disturbance events are addressed in Chapter 2 of the PRLRMP (page 2-8) as well as each management prescription desired condition in Chapter 3. Natural disturbances contribute to early successional habitat needs of species on the JNF. We have not and will not attempt to predict how much of this habitat will be created naturally since it is highly variable in time and space. However, as described in the background section for wildlife in Chapter 2 of the Revised LRMP, natural disturbances that create early-successional forest patches of desired structure and size will be counted toward objectives for this habitat at the site-specific project level. It is certainly legitimate to consider how much of this habitat currently exists as a result of past disturbances when developing the alternatives for a project.

**315. The Forest Service should, in the cumulative effects analysis, consider private lands that may already provide early successional habitat.**

The DEIS (3-103) identifies that early successional habitat on surrounding private lands will be considered in site specific project level planning, to the extent possible. See also Response #314.

**316. The Forest Service should, in the effects analysis, make clear that natural processes also contribute to the desired future condition of areas.**

**317. The Forest Service should account for naturally occurring canopy openings in the analysis of early successional habitat, and implement management based on natural processes.**

**318. The Forest Service should not ignore existing and naturally occurring early successional "gaps."**

Our approach of not counting early-successional forest patches of less than two acres towards early-successional forest objectives was adopted for two primary reasons. First, some species, such as prairie warblers and golden-winged warblers, are restricted to, or prefer, larger habitat patches. Meeting early-successional forest objectives through provision of many small patches would not meet their habitat requirements. Second, there is a limit to the size of patches that can be efficiently tracked in inventories and analyzed for habitat availability. Two acres was the smallest unit deemed practical to try to map and track in inventories, and is considerably smaller than current inventories typically track. It is also typically the largest size of opening created during group selection treatments; larger openings are generally considered even-aged or two-aged patches.

We fully recognize that openings and canopy gaps that are less than two acres, whether created by management or of natural origin, provide a habitat condition with some early-successional characteristics that are important to some species. Our recognition of the need for these conditions is reflected in both the canopy gap objective (objective 6.01 in the PRLRMP) and the old growth objective (objective 12.01 in the PRLRMP). To provide for all species, however, it is necessary to provide the full spectrum of successional forest habitats: larger patches of early-successional forest, late-successional mature forest with canopy gaps, and mid- and late-successional forest with relatively closed canopies.

**319. The Forest Service should create early successional habitat in areas containing cultural resources only if necessary for the protection of the cultural resources.**

Cultural/heritage areas (management prescription 4E) Are "managed to highlight and protect unique historic resources as well as to develop public understanding of, and appreciation for, the influence of human history on the forest ecosystem." in some cases, this influence included timber harvest. Standard 4E-001 states "all management activities within these areas must be compatible with the protection and interpretation of cultural/historic resources." the term "low intensity timber harvest" has been clarified.

Early Successional Habitat in Riparian Areas

**320. The Forest Service should explain why natural processes are not sufficient for the creation of early successional habitat and canopy gaps in riparian forests.**

**321. The Forest Service should not create early successional habitat in riparian areas.**

**322. The Forest Service should specify objectives and standards to actively manage for hard mast of oak and hickory early successional habitat within riparian areas.**

Objective 11.05 on page 2-20 of the PRLRMP provides for the management of forested community types comprised of oak species. While riparian habitats are not specified, we recognized that early seral habitat and promotion of habitat objectives not directly tied to riparian dependent species are appropriate in some portion of the riparian corridor. Some commenters want more specific direction for managing these highly productive areas for oak mast production and early- successional habitats. Others feel these areas should be used to emphasize old growth restoration and protection of aquatic species and water quality. The RLRMP attempts to accomplish both. We have recognized the importance and value of riparian areas by creating a separate prescription for riparian corridors. Desired conditions within this prescription emphasize late-successional forests, and many standards are included to ensure maintenance of water quality. These qualities are of primary importance. However, this prescription does not rule out active management, when it can be conducted in ways compatible with maintaining or enhancing riparian resources. Vegetation management projects that enhance mast production or create early successional habitat may be proposed for riparian areas during Forest Plan implementation. Standard 11-012 (PRLRMP) provides for 2% early successional habitat in riparian corridors within the 8E1 management prescription. Standard 11-017 of the PRLRMP was strengthened in the Final RLRMP by specifying that vegetation native to the site could be enhanced by tree removals. This edit would allow promotion of hard mast producers in a portion of the riparian corridor. Furthermore, new standards have been incorporated into the Final PRLRMP which would facilitate management for hard mast and early successional habitat in the riparian corridors. Finally, one comment stated that cut and leave techniques for control of insects should be specified. Standard 11-016 of the PRLRMP states this. See also Response #317.

**323. The Forest Service should create early successional habitat of 5-15 years of age in riparian areas with mesic soils.**

**Create early successional habitat of 5-15 years of age in riparian areas with mesic soils to benefit grouse**

The ruffed grouse management prescription, 8E1. and the riparian corridor management prescription 11, allow for creation of early successional habitat within the riparian corridor, while also protecting other riparian resources and values. Standard 8E1-002 in the PRLRMP states "early successional habitat openings larger than 5 acres may extend into the adjacent upland areas, as long as the opening area within the riparian corridor (management prescription 11) is not greater than 5 acres in size. The paragraph on page 3-123 of the PRLRMP under emphasis for the ruffed grouse management prescription has been changed.

**324. The Forest Service should conduct prescribed burns in areas of mesic soils and riparian areas.**

**To benefit ruffed grouse habitat**

While fire frequently occurred in upland oak and pine dominated forests it's unlikely fires burned over the mesic soils of riparian areas with enough frequency or intensity to modify the vegetation composition or structure, therefore the use of prescribed fire is not appropriate to meet the objectives of managing grouse or woodcock habitat. Riparian areas and mesic sites are low disturbance systems that commonly regenerate through natural development of relatively small canopy gaps, and occasional larger openings as a result of beavers, flood events, wind, or ice

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storms. Frequent fire in these systems was not typical historically and is not desirable presently. Prescribed burning is conducted within strict weather parameters to avoid an escaped fire situation and it is unlikely these parameters could be met under the weather conditions necessary to burn these wet ecosystems. Standards FW-145 and FW-146 address prescribed burning in mesic deciduous forest communities and management prescription 11 (Riparian Corridors) standards 11-025 and 11-026 address prescribed burning in riparian areas.

Permanent Wildlife Openings

**325. The Forest Service should include percentages of permanent wildlife openings in the wildlife goals, objectives, and standards.**
Because permanent openings are important to game and nongame wildlife

**326. The Forest Service should specify a goal to maintain or increase the amount of permanent herbaceous wildlife clearings.**
Because some species require this habitat, which is especially important when rare

We agree that permanent wildlife openings are an important component of wildlife habitat diversity. Each management prescription in Chapter 3 of the Revised LRMP outlines whether new permanent openings will be created and existing openings will be maintained. See also Response #327.

**327. The Forest Service should not count any regeneration cut as a wildlife opening for calculations.**
Because they are a transitory / temporary stage of forest development

**328. The Forest Service should include prescription standards applying to permanent openings.**
We acknowledge that permanent herbaceous openings are different in characteristics from early successional woody/herbaceous habitat created by silvicultural methods. However, we believe permanent herbaceous openings should be considered separately from early successional percentage calculations used in prescription 8A1. Types of early-successional habitat we have addressed include early successional forests, open woodlands, improved pastures, permanent wildlife openings, old fields, maintained rights-of-way, and balds. Objectives within individual management prescriptions provide for early successional forests. Forestwide objectives provide for open woodland habitats. Desired conditions and standards for permanent wildlife openings are described in individual management prescriptions. Desired conditions for improved pastures, old fields, maintained rights-of-way, and balds are described in management prescriptions 7G, 8E6, 5C, 4K3, and 4K4 respectively. Early successional habitat calculations are described in detail in the background section for Wildlife in Chapter 2 of the Revised LRMP. This discussion has been expanded and clarified from the PRLRMP.

**329. The Forest Service should calculate percentages of permanent wildlife openings without inclusion of any early successional habitat.**
To provide a more accurate accounting of permanent wildlife habitat

We feel the relationship between permanent wildlife openings and transitory early successional habitat created through timber harvest or prescribed burning is best determined at the site-specific project level based on specific project objectives and in cooperation with the applicable state wildlife agency. Early successional habitat calculations are described in detail in the background section for wildlife in Chapter 2 of the Revised LRMP. This discussion has been expanded and clarified from the PRLRMP.

**330. The Forest Service should specify a minimum of 5% wildlife openings (beyond other opening standards) in the Forestwide goals, objectives, and standards, and all prescriptions.**

**Because wildlife openings are grouped and the Forest Service cannot legitimize percentages based on theoretical natural disturbance events**

Natural disturbances contribute to early successional habitat needs of species on the JNF. We have not and will not attempt to predict how much of this habitat will be created naturally since it is highly variable in time and space, however, at the site-specific project level it is certainly legitimate to consider how much of this habitat currently exists as a result of past disturbances when developing the alternatives for a project. We will continue to work closely with the West Virginia Department of Natural Resources to create and maintain permanent wildlife openings in Monroe County, West Virginia. See also Responses #327 and #314.

**331. The Forest Service should implement recommendations for permanent wildlife openings and early successional habitat as provided by the West Virginia Division of Natural Resources.**

The levels of early successional habitat specified by management prescription are based on a number of factors, including silvicultural characteristics of JNF forest communities, aesthetic concerns, public issues, and existing law, regulation, and policy. An objective of 25-35% early successional habitat in stands less than 10 years of age equates to a rotation age of 30-40 years which would require harvesting stands prior to culmination of mean annual increment, a violation of the NFMA (36 CFR 219.4(a)(3)(vi)). See also Response #327.

**332. The Forest Service should explain why some permanent openings are not considered early successional habitat.**

We acknowledge that permanent herbaceous openings are different in characteristics from early successional woody/herbaceous habitat created by silvicultural methods. However, we believe that permanent herbaceous openings should be considered separately from early successional percentage calculations. The PRLRMP on page 2-8 and 2-9 does distinguish between different types of early successional habitat including transitional versus permanent openings. Types of early-successional habitat we have addressed include early successional forests, open woodlands, improved pastures, permanent wildlife openings, old fields, maintained rights-of-way, and balds. Objectives within individual management prescriptions provide for early successional forests. Forestwide objectives provide for open woodland habitats. Desired conditions and standards for permanent wildlife openings are described in individual management prescriptions. Desired conditions for improved pastures, old fields, maintained rights-of-way, and balds are described in management prescriptions 7G, 8E6, 5C, 4K3, and 4K4 respectively. Early successional habitat calculations are described in detail in the background section for Wildlife in Chapter 2 of the Revised LRMP. This discussion has been expanded and clarified from the PRLRMP.

**333. The Forest Service should conduct active management to provide diversity and the interspersion of habits for fish and wildlife.**

**To maintain high-use wildlife-based recreation and access for other recreation**

**334. The Forest Service should conduct planned silvicultural treatments.**

**To provide habitat for all fish and wildlife populations**

**To maintain viable game and nongame wildlife populations**

**To maintain sustained yield of renewable resources including wildlife**

**Because active management benefits wildlife and forest health**

**335. The Forest Service should conduct timber harvest to benefit wildlife**

We agree with your comments and we are planning to continue the use of active management and silvicultural treatments to meet wildlife-related goals and objectives to varying degrees in different alternatives. Alternative C, which was eliminated from detailed study, met these goals and objectives primarily through

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natural processes.

## INTERIOR HABITAT

**336. The Forest Service should analyze effects of fragmentation within the Draft Environmental Impact Statement.**

Fragmentation is a multi-faceted issue. It may affect a variety of species at a variety of scales in a variety of ways. It is a broad umbrella concept that includes a great diversity of potential cause-and-effect relationships. To effectively deal with this issue in planning, it is necessary to be specific about what fragmentation effects are of concern. Most comments related to fragmentation are stated in broad terms that are therefore difficult to address. Chapter 3 of the DEIS (pages 3-100 through 3-114) includes analysis of effects of fragmentation on productivity of forest interior birds. This specific fragmentation issue is addressed because it is the most high-profile and well-documented aspect of fragmentation effects on species populations. Methodology used in this analysis represents state-of-the-science on this issue, as documented by literature cited in the EIS. Additional support for this approach is found in a new book on bird conservation by Faaborg (see Chapter 6 of Saving Migrant Birds: Developing Strategies for the Future, published in 2002 by University of Texas Press, Austin). These sources conclude that the scale and focus of analysis used in the EIS (percent forest cover on 75,000 acre landscapes) is the most appropriate approach for assessing fragmentation effects on bird productivity. No other specific fragmentation effects have been raised, internally or externally, that are significant and well-documented enough to warrant additional analysis.

**337. The Forest Service should not create matrix forest blocks of openings.**

Because matrix openings will increase fragmentation

We do not expect a significant increase in the amount of open habitat on the Forest in the near future (DEIS 3-110, Table 3-49). Open habitats are likely to be created as a result of other management activities or may be added as part of land acquisition.

**338. The Forest Service should better analyze the phrase "core area."**

We feel the discussion contained in the DEIS, Chapter 3, Biological Environment, Terrestrial Species and Their Habitats, Interior Habitats adequately addresses this issue. We disagree that the JNF is heavily roaded and fragmented as indicated by our analysis using the EPA's 1990 National Land Cover Data. This analysis and our findings have been developed in cooperation with the U.S. Fish and Wildlife Service's Migratory Bird Office. See also Response #356.

## BLACK BEAR

**339. The Forest Service should specify how black bear and other disturbance sensitive species will be provided for in 8B-008 and 8E1-016.**

The DEIS Chapter 3, Biological Environment, Terrestrial Species and Their Habitats, Demand Species (pages 3-176 through 3-178) discuss the effects on black bear.

**340. The Forest Service should better protect black bear habitat.**

Based on science

**341. The Forest Service should designate protective prescriptions for black bears.**

Because the Forest Service has not demonstrated that prescriptions provide optimal habitat

**342. The Forest Service should not harvest timber for "bear management.**

Because there are more bear today than years ago

Monitoring information indicates that black bears are relatively abundant and their populations are stable or increasing. Chapter 3 of the EIS discusses the effects of

the 7 alternatives on black bear habitat. This analysis indicates that black bears and their habitat will continue to be well provided under all alternatives.

**343. The Forest Service should not manage Management Area 5 Glade / Pond Mountain as bear habitat.**

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. The Virginia Department of Game and Inland Fisheries supported this land allocation because Management Area 5 is an important corridor for black bears traveling between the Southern Blue Ridge and Ridge and Valley Ecological Sections. The Great Valley of Virginia is particularly narrow through this area providing forested cover between the two Ecological Sections. The FEIS includes 7 Alternatives, with different combinations of land allocations in Management Area 5 in order to respond to the 20 significant issues. Alternative E does not allocate any of this Management Area to 8C, Black Bear Habitat. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**344. The Forest Service should respond to questions about standards for bear management.**

**345. The Forest Service should expand the standard for black bear den trees.**

Although FW-31 in the PRLRMP does address retaining large den trees greater than 20 inches in d.b.h., it is important to note that the numbers of snags are addressed in FW-45. Taken together, 6 snags per acre greater than 9 inches in d.b.h. are retained for the Indiana bat (as well as other snag associated species like woodpeckers) and all potential bear den trees greater than 20 inches in d.b.h. are retained.

**346. The Forest Service should reduce road density to achieve densities consistent with recommendations based on science.**

**347. The Forest Service should develop a standard to ensure that all road construction in 8.C, Black Bear Habitat, is closed to public motorized use and to the lowest feasible standard.**

We have reviewed our road density standards for the Final RLRMP and appropriate adjustments have been made.

**348. The Forest Service should address bear poaching.**

The issue of illegal bear poaching is an important issue but a legal one and, as such, is considered outside the scope a forest plan.

**349. The Forest Service should restrict bear hunting.**

The Virginia Department of Game and Inland Fisheries and the West Virginia Department of Natural Resources have the responsibility to develop bear hunting regulations. The Forest Service works closely with these agencies to develop regulations and restrictions on Forest Service lands, but the ultimate responsibility for regulation decisions rest with these state agencies.

**350. The Forest Service should implement Prescription 8.C for black bear habitat management.**

**To retain and protect potential den trees for bears**

Thank you for your comment. We agree that timber harvesting can be an important tool in maintaining black bear habitat.

**351. The Forest Service should modify the wording in 8.C. to specify that 90% of the area will be managed to maintain forest cover greater than 60 years of age, or that a maximum of 10% will be managed in early successional conditions.**

We agree this wording was confusing and we have clarified it in the final RLRMP. It does not make sense, however, to exclude embedded old growth in the calculations of age class distribution for various wildlife management prescriptions as they are an integral part of the contiguous management prescription area and are only highlighted to ensure the long-term protection of the old growth community.

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**352. The Forest Service should develop a standard or guide for Management Prescriptions 8.C, Black Bear Habitat, and 8.A.1, Mid-to-Late Successional Habitat, addressing permanent water sources.**

The need for permanent water sources is more logically addressed at the site-specific project level.

**353. The Forest Service should change the Management Prescription on Mottesheard roadless area from 12.B, Remote Backcountry – Non-motorized, to 8.C, Black Bear Habitat.**

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. Alternatives A and B are consistent with your request. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

## BEAVERS

**354. The Forest Service should reintroduce beavers at selected sites.**

This is a site-specific decision. The PRLRMP does not prevent this.

**355. The Forest Service should reduce beaver populations in riparian areas.**

**To reduce negative effects in riparian zones and to trout habitat**

Beaver ponds and associated wetlands are an important element of landscape diversity and are a rare community when associated with significant populations of TES species, management prescription 9.F. Otherwise they are treated on a case-by-case basis.

## BIRDS

**356. The Forest Service should specify the avian species that will be monitored and how monitoring information will affect management.**

In order to comply with the provisions of Executive Order 13186, a team of biologists from each of the five Southern Appalachian forests (as well as the Daniel Boone National Forest) worked closely with the Migratory Bird Office of the U.S. Fish and Wildlife Service (FWS) to incorporate bird conservation measures in the revised plan. Cooperation involved reviewing relevant Partners in Flight Bird Conservation Plans and meeting with FWS personnel on multiple occasions to develop and revise recommended management strategies. Management strategies that have been incorporated into the revised plan include objectives and standards for restoration and maintenance of key habitat conditions, such as high-elevation early-successional habitat, spruce-fir forests, mature forest with diverse canopy structure, early successional forest, mature riparian forest, riparian forests with dense understories, canebrakes, and open pine and oak woodlands, savannas, and grasslands. In fact, much of the vegetation management directed at major forest community types in the revised plan is driven by bird conservation needs. Following release of PRLRMP and DEIS, we met again with FWS personnel to review and discuss proposed revised plans during the public comment period. Based on this review, the FWS submitted comments to individual forest staffs, leading to modifications in Appendix G, Monitoring Tasks.

**357. The Forest Service should write prescriptions for the cerulean warbler.**

Many management prescriptions include desired conditions to benefit the cerulean warbler as well as other species that benefit from increased structural diversity in our mixed mesophytic and mesic oak forest communities. Forestwide direction in Chapter 2 of the PRLRMP also provides goals and objectives for creation of canopy gaps expected to improve habitat conditions for this species. A monitoring task related to cerulean warbler has been added to Appendix G. The Terrestrial Viability Analysis summarized in Chapter 3 of the DEIS (and updated in the FEIS) discusses

the analysis of habitat conditions by alternative for species with viability concerns.

**358. The Forest Service should maintain high elevation balds.**
**To benefit golden-winged warblers and other wildlife**

Many management prescriptions include desired conditions to benefit the golden-winged warbler as well as other species that benefit from maintenance of high elevation early successional habitats. Forestwide direction in Chapter 2 of the PRLRMP also provides an objective for maintenance of high elevation early successional habitats (OBJ 6.03 in the PRLRMP). A monitoring task related to golden-winged warbler has been added to Appendix G. The Terrestrial Viability Analysis summarized in Chapter 3 of the DEIS (and updated in the FEIS) discusses the analysis of habitat conditions by alternative for species with viability concerns.

## GAME SPECIES

**359. The Forest Service should provide information on trends for demand species and their use.**
**Because most visitors seek to view live animals**

Chapter 5 of the analysis of the management situation for the Jefferson Revised LRMP contains the supply/demand analysis for wildlife, both in terms of hunting and viewing wildlife. Additional information is also available in the *Southern Appalachian Assessment Terrestrial Technical Report* (1996) and the *Southern Forest Resource Assessment* (2002).

**360. The Forest Service should pot promote demand species drawn to early successional habitat at the expense of a greater number of species that require mature forests.**

**361. The Forest Service should manage habitat for 'interior species' instead of game species.**

**362. The Forest Service should develop different kinds of habitat for different kinds of wildlife.**
We agree that we have a responsibility to provide habitat for all the many different species found throughout the planning area. The different alternatives described in the EIS accomplish this in different ways. The biological environment section in Chapter 3 of the EIS describes these differences between alternatives and the effects on species found in and around the Jefferson National Forest. Pages 3-149 through 3-167 of the DEIS describe the results of the Terrestrial Viability Analysis and Appendix E provides background information regarding this analysis including the full list of species considered and their associated habitat elements. The terrestrial viability analysis has been reanalyzed in the FEIS based on comments received on the DEIS and scientific peer review.

Successional forest objectives in prescriptions are stated in terms of percent of forested land desired in early-successional forest, mid- and late-successional forest combined, and late-successional forest alone. In addition, goals, objectives, and desired conditions are provided for permanent wildlife openings, old fields, open woodlands, canopy gaps, snags, large woody debris, old growth, and rare communities.

**363. The Forest Service should reduce grouse, deer, and wild boar populations.**
**To reduce negative effects to vegetation**

**Because these species are pests**

**Because grouse are not endangered**

Ruffed grouse populations have declined across the Southern Appalachians over the last 25 years and do not meet hunter demands. The DEIS, pages 3-175 through 3-176, discuss the effects of the different alternatives on ruffed grouse. Deer populations and densities are controlled through hunting regulations managed by the state game agencies (Virginia Department of Game and Inland Fisheries and West Virginia Department of Natural Resources). We work cooperatively with these

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agencies. The DEIS, pages 3-169 through 3-170, discuss the effects of the different alternatives on white-tailed deer. A discussion of the effects of deer herds has been added to the DEIS (see also Response #372). The record of decision describes the rationale for selecting the alternative that becomes the Revised LRMP for the Jefferson National Forest. Wild boar have been a very limited and isolated problem on the JNF. From time to time, a misguided individual introduces a few hogs onto the Forest and we remove them as quickly as possible. Forest Service policy on non-native species is set in 36 CFR 219.19 and Forest Service Manual 2640.

**364. The Forest Service should not conduct game management and allow the taking of game.**
It is Forest Service policy to provide a variety of fishing, hunting, trapping, viewing, studying, and photographing opportunities and experiences in cooperation with the state fish and wildlife agencies (FSM 2640.3). Hunting regulations are managed by the state game agencies (Virginia Department of Game and Inland Fisheries and West Virginia Department of Natural Resources).

**365. The Forest Service should protect turkeys, turkey habitat, and reduce the road density.**
The effects of various alternatives on the eastern wild turkey are discussed in the DEIS pages 3-170 through 3-173. Objectives for road density have been added to several management prescriptions in the Revised LRMP.

**366. The Forest Service should modify objective 19.02 to include hunting and fishing as recreational opportunities the Forest Service strives to increase.**
Hunting and fishing are addressed in the PRLRMP in Goal 5, rather than Goal 19.

Ruffed Grouse

**367. The Forest Service should not create early successional habitat for the benefit of grouse.**
Ruffed grouse utilize a variety of forest habitats and successional stages. Early successional habitats provide an abundant high protein food source and develop into sapling and poletimber habitats important for protective cover. The DEIS, page 3-173 through 3-176, discusses in more detail the various key habitat components required for ruffed grouse management as well as effects of the various alternatives developed in detail for the PRLRMP. Many scientific books and articles were used in the effects analysis for ruffed grouse; the bibliography for the EIS is not intended to be an exhaustive literature search.

**368. The Forest Service should manage national forest system lands to provide suitable habitat for ruffed grouse and woodcock.**
**Because expanding habitat will provide a number of benefits**

**Because these populations can indicate overall ecological health**

Management prescription, 8E1 provides optimum habitat for ruffed grouse on the JNF. In addition, many other management prescriptions across the forest will provide improved habitat conditions for ruffed grouse. The effects of various alternatives on ruffed grouse are discussed in the DEIS pages 3-175 through 3-176. There was an error in our spectrum model for predicting early successional habitat beyond the first decade. This error has been fixed, resulting in 2.3% of the JNF in early successional habitat conditions in year 50 (table 3-42 in the DEIS).

**With at least 10% of the forest in early successional habitat**

Objectives for early successional habitat are provided in the management prescriptions described in Chapter 3 of the Revised LRMP. Objectives are not stated Forestwide because our goal is to provide landscape level blocks of habitat that vary in their suitability for early and late successional species. See page 2-8 of the PRLRMP.

**With some clearcuts to benefit those species**

Standard 8E1-018 in the PRLRMP states "primary regeneration harvest method is clearcutting (with 6 reserve trees per acre for potential Indiana bat roost trees). Coppice with reserve harvests may be used where scenery concerns override habitat needs."

**With stands 6-15 years of age**

The paragraph on page 3-123 of the PRLRMP under emphasis has been changed.

**By actively managing national forest system lands**

Alternatives D, F, and A provide the highest levels of early successional habitat. The Regional Forester has identified in the Record of Decision which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**369. The Forest Service should manage grouse hunting instead of grouse habitat.**
The Virginia Department of Game and Inland Fisheries and West Virginia Department of Natural Resources are responsible for management of hunting. The Forest Service is responsible for managing habitat. We work in close coordination and cooperation with one another.

**370. The Forest Service should include, in management prescription 8E1, a statement that encourages reasonable access for hunting during the season.**
We feel access management issues are best addressed at the site-specific project level based on specific project objectives and in cooperation with various Ruffed Grouse Society Chapter partners and the applicable state wildlife agency.

Deer

**371. The Forest Service should manage forests for deer.**
White-tailed deer use a variety of forest types and successional stages for their year-round habitat needs. The effects of various alternatives on white-tailed deer are discussed in the DEIS pages 3-167 through 3-170. Additional road density standards have been added to the Revised LRMP.

**372. The Forest Service should analyze the effects of deer herds and browsing on habitat degradation, species diminishment, and old growth.**

**373. The Forest Service should not conduct timber harvest and prescribed burns in Southern Appalachian national forests because it would increase over-abundant deer herds and result in negative effects**
A discussion of the effects of deer herds has been added to the FEIS under Chapter 3, biological environment, terrestrial species and their habitats, demand species, white-tailed deer. Effects related to timber harvesting and prescribed burning can be found throughout Chapter 3 of the EIS.

## INVERTEBRATES AND INSECTS

### Species Viability

**374. The Forest Service should consider that the PRLMP violates provisions of the National Forest Management Act by not assuring species viability.**

**375. The Forest Service should build a fine filter species monitoring program, and disregard the existing coarse filter viability analyses.**
**Because expert judgments were used**

**Because expert judgments were informed by Spectrum which does not accurately model the dynamics of Southern Appalachian forests**

**Because species assignments and methodologies were supposed to be reviewed by a panel of**

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scientists

Because the analysis is a habitat analysis based on questionable habitat modeling and educated guesses

Because data by Cherokee National Forest archaeologist is not referenced

Because the plans fail to establish fine filter monitoring

Because there are no guidelines to address locally rare species, many of which have high viability concerns

Because the plan fails to provide standards for threatened, endangered, sensitive, and locally rare species

**376. The Forest Service should require managers to intensively survey, monitor, and provide for the viability of sensitive and locally rare species.**

Because these species are ignored in the plan, but are environmentally significant

**377. The Forest Service should conduct full surveys and inventories of species and their habitats sufficient to ensure viability.**

Because the Forest Service has not conducted necessary surveys and inventories

Because the Forest Service has provide no population monitoring data or analysis that document that species will be maintained

Because habitat data is an unsuitable surrogate for population data

Because the use of habitat data as a surrogate has been discounted by the Federal judiciary

Because the viability analyses is based entirely on national forest lands and ignores all other land ownership activities and their direct, indirect and cumulative effects

Because of the use of expert judgment and arbitrary approaches and decisions

Because there are no analysis and explanation or justification for including or excluding species in rare species monitoring programs

Because actual population data is required

To comply with laws and regulations

Because the strategy for viability analysis is designed to get around Sierra Club V. Martin

Because monitoring that lacks scientific basis violates NEPA and is arbitrary and capricious

We agree that inventory and monitoring are critical and necessary components of a program to provide for species viability. Because of the incredible diversity of species on the forest monitoring populations of every species of potential viability concern is not feasible. Practical monitoring programs must combine monitoring of habitat conditions, populations of indicator species, and populations of priority viability concern species. This combination is reflected in the Revised Plan's monitoring chapter, which includes monitoring questions that cover all of these elements. The Monitoring Summary Table in Appendix G of the Revised Plan provides more specifics on relevant elements to be monitored, including individual federally listed species that are known to occur on the Jefferson National Forest (blackside dace, James River spinymussel, northern flying squirrel, Indiana bat, northeastern bulrush, Virginia spirea, small-whorled pogonia, and Virginia round-leaf birch. Details of monitoring tasks outlined in Appendix G will be developed as we begin to implement the revision and refined based on best available science.

In addition, Task #33 in the Monitoring Summary Table indicates additional inventory and monitoring of viability concern species (including "locally rare" species, where appropriate) will occur based on prioritization developed and revised

during plan implementation. Prioritization will involve use of more site-specific information on species occurrences, in addition to the more general information from the viability evaluations in the EIS. Although commenters expressed desire to see more of this information in the EIS, more detail is not necessary at this strategic planning level. Given the large number of species and the site-specific considerations involved, and the likelihood that priorities will shift throughout the life of the plan as better information is obtained, it is appropriate to establish these additional details as part of plan implementation.

Related comments contend that the set of selected Management Indicator Species (MIS) are inadequate to represent all species of viability concern. As discussed above, indicator species are but one part of our biological monitoring program. We have made no effort to select MIS to represent all species of viability concern, nor is there a requirement for us to do so. MIS, as described in 36 CFR 219.19, serve a variety of purposes during forest planning, not all of which are relevant to species viability. Only where appropriate are MIS selected for the Revised Plan "because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities" (36 CFR 219.19 (1)). Reasons for selection of MIS are documented in Chapter 5 of the Revised Plan, in the relevant sections of the EIS, and in the Management Indicator Species Selection Process Record. Some commenters correctly noted that we have de-emphasized the role of MIS in viability analysis. We have reduced emphasis on MIS because of the current state of science, which calls into question many traditional uses of the indicator species concept (see MIS Selection Process Record for a brief review). Nevertheless, our selection and use of MIS in this plan revision meets both the letter and intent of regulations.

The strategy for aquatic viability analysis was designed to identify large-scale attributes that may contribute to maintenance of aquatic systems. The terrestrial and aquatic viability analyses have been reanalyzed in the FEIS based on comments received on the DEIS and scientific peer review.

## Threatened, Endangered, Sensitive, and Locally Rare Species

**378. The Forest Service should comply with direction requiring management and recovery of threatened, endangered, and sensitive species.**

**379. The Forest Service should recognize that land and resource management plans are agency actions that require the agency to enter into consultation with the Fish and Wildlife Service in order to comply with the Endangered Species Act**

Although there is no requirement in the National Forest Management Act to consult with the Fish and Wildlife Service, we have consulted with them. Formal consultation was initiated on August 19, 2003. Informal consultation has been ongoing through preparation of the Draft and Final EIS. We received written concurrence on our findings for thirty-five federally-listed species found on or near the Jefferson National Forest. The U.S. Fish and Wildlife Service will issue their Biological Opinion on the Final RLRMP and FEIS prior to the Record of Decision being signed. Biological Opinions are not issued on draft documents.

**380. The Forest Service should, as required by NFMA, should proceed with formal consultation with the Fish and Wildlife Service because the Forest Service has found that the proposed activities may affect threatened and endangered species and because it does not have adequate information and analysis to conclude that the forest plan's proposed activities are not likely to adversely affect any species**

**381. The Forest Service should analyze and publish the effects of management actions on all proposed, endangered, threatened, and endangered species.**

Analysis of effects on threatened and endangered species are analyzed and

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discussed in the EIS Chapter 3, Biological Environment for both terrestrial and aquatic species. A Biological Assessment was also completed in conjunction with the FEIS and forwarded to the U.S. Fish and Wildlife Service. They will issue their Biological Opinion on the Final RLRMP and FEIS prior to the Record of Decision being signed. Biological Opinions are not issued on draft documents. Species proposed for federal listing are included in the viability evaluations for both terrestrial and aquatic species, along with other species of viability concern. A Biological Evaluation has been completed for these species in conjunction with the FEIS. The Biological Assessment, Biological Evaluation, and Biological Opinion are all available on the CD-Rom that accompanies the FEIS and Final RLRMP.

**382. The Forest Service should not create openings for threatened and endangered species.**

not create openings for threatened and endangered species Because the utility of such action is questionable

Each threatened and endangered species has habitat preferences and ecological conditions that support populations of that species through time. We will manage habitat for threatened and endangered species based on the best available scientific knowledge and understanding of a species biology. If "openings" are required by a particular species, then we will manage for "openings". Likewise, we will not manage for habitat conditions not required for a threatened and endangered species in an area occupied by that species.

**383. The Forest Service should protect and restore threatened, endangered, sensitive, and locally rare species and their habitat.**

For species that can only be found in interior forests

**384. The Forest Service should establish enforceable mechanisms for the protection of threatened and endangered species.**

There are numerous goals, objectives, and standards in the RLRMP specifically for the protection and restoration of threatened, endangered, sensitive, and locally rare (TESLR) species. We have followed an approach that protects and enhances the habitat for these species as the first priority. See Chapter 2 of the RLRMP, Wildlife, Rare Communities, and Vegetation sections, which provide goals, objectives, and forest-wide standards for restoration and protection of these species. See also management prescriptions 4.D. Special Biological Areas, 8.E.2. Peaks of Otter Salamander Habitat Conservation Areas, 8.E.4. Indiana Bat Hibernacula Protection Areas, 9.F. Rare Communities, and 11 Riparian Corridors. In addition the desired conditions of all management prescriptions specifically address protection and maintenance of listed and rare species habitat. Conservation work, including reintroduction, for specific species is proposed and completed through site-specific projects.

Species associated with interior forests are included among the many TESLR species that we manage habitat for. Chapter 3 and Appendix E of the EIS describe the Terrestrial Species Viability Assessment used to evaluate the effects of the alternatives on TESLR species. The terrestrial viability analysis has been reanalyzed in the FEIS based on comments received on the DEIS and scientific peer review. See also Response #431.

**385. The Forest Service should make the recovery of threatened and endangered species a priority in the forest plan revision.**

**386. The Forest Service should implement species recovery plans.**

**387. The Forest Service should act to restore current and proposed threatened and endangered species, not simply maintain populations.**

Recovery is a priority for federally listed species on the Forest. See Chapter 2 of the RLRMP, Wildlife, Rare Communities, and Vegetation sections, which provide goals, objectives, and forest-wide standards for recovery, restoration, and protection of

federally listed species and their habitat. See also management prescriptions 4.D. Special Biological Areas, 4.K.3. Mount Rogers Crest Zone Special Area, 4.K.4. Whitetop Mountain Special Area, 8.E.4. Indiana Bat Hibernacula Protection Areas, 9.F. Rare Communities, and 11 Riparian Corridors. Elements of recovery plans for listed species have been incorporated into the Revised Plan. Restoration of spruce-fir habitat for the northern flying squirrel has been more clearly described in the Final Revised Plan and FEIS.

**388. The Forest Service should specify survey requirements for protected, threatened and endangered species.**

Because lack of survey requirements and dropping of sensitive species is arbitrary

**389. The Forest Service should conduct an inventory of all proposed, endangered, threatened, and endangered species.**

Survey (inventory) requirements for threatened and endangered species have been addressed in the regional supplement to the Forest Service Manual (2672.43). This document requires each project proposal and species therein to be evaluated for the need to inventory. This process can be viewed at the Southern Region of the Forest Service website.

**390. The Forest Service should establish goals, objectives, and standards for monitoring threatened, endangered, sensitive, and locally rare (TESLR) species.**

Monitoring is a task that is outlined in Chapter 5 and Appendix G of the Revised Plan. Monitoring of species with a viability concern is specifically addressed in Monitoring Question 7. Our strategy is to monitor species and/or their habitat based on our objectives for that species. Details of monitoring tasks outlined in Appendix G will be developed as we begin to implement the revision and refined based on best available science. Some species will need a very detailed plan; others will be monitored through collection of data by other agencies and individuals.

**391. The Forest Service should abolish programs related to sensitive and locally rare species.**

Because such lists are subjectively developed with little documentation

Because such lists raise concern for large forest areas and beyond that which is reasonable

Adoptions of such lists could have legal implications and incur obligations

Dropping programs relating to sensitive and locally rare species is outside the scope of a Forest Plan. See Chapter 1 of the Revised Plan and Chapter 1 of the EIS.

**392. The Forest Service should specify concrete objectives, standards, and target numbers for each species.**

One of the primary focus areas of the PRLRMP is to provide for suitable habitat and extant populations of TESLR species (see Chapter 2, Chapter 5, and Appendix G). It is not possible to specify target numbers for each species since many variables that determine population numbers at any given time are beyond our control. Appendix G (PRLRMP) Tasks # 24-33, display our intent to monitor population trends of TESLR species.

**393. The Forest Service should specify that it will obtain permits to "take" threatened and endangered species from both the U.S. Fish and Wildlife Service and state fish and wildlife agency.**

**394. The Forest Service should implement timber management prescriptions to prevent "takings" of endangered species.**

"Take" provisions, as defined in the Endangered Species Act, were contained in the Biological Opinion issued by the U.S. Fish and Wildlife Service upon completion of formal consultation. These "take" provisions apply to the Indiana bat. State agencies do not have "take" provisions contained in their regulations or state laws.

**395. The Forest Service should leave coyotes alone until wolf reintroduction is a success.**

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We know of no USF&WS or State wildlife agency plans for wolf reintroduction at this time. We do not "bother" coyotes, and therefore are unclear as to what the commenter means by requesting we "leave them alone."

**396. The Forest Service should explain how the determination was made as to the level of management is needed for the numerous threatened, endangered, sensitive, and locally rare species on the forest**

Management of each threatened, endangered, sensitive, and locally rare (TESLR) species depends on species biology and associated habitat and management prescription in which it is found.

**397. The Forest Service should consult with state natural resource agencies prior to reducing riparian buffers within watersheds containing threatened and endangered species.**

Riparian areas are managed under Forestwide standards along with goals, objectives, and standards found under prescription 11.

## INDIANA BAT

**398. The Forest Service should conduct population inventory, analysis, and monitoring for bats.**
**Because the plan and analysis are inadequate**

Survey (inventory) requirements for threatened and endangered species have been addressed in the regional supplement to the Forest Service Manual (2672.43). This document requires each project proposal and species therein to be evaluated for the need to inventory. This process can be viewed at the Southern Region of the Forest Service website. Bat inventory and monitoring is accomplished in association with surveys conducted by the Virginia Department of Game and Inland Fisheries using established protocols.

**399. The Forest Service should expand bat protection zones across the entire forest.**

**400. The Forest Service should address questions and recommendations regarding bat management.**

Management of bats is found in Forestwide standards covering Indiana bats, rare communities, and prescriptions 8E4a and 8E4b.

**401. The Forest Service should not conduct timber harvest in bat management areas.**
**Because timber harvest may disrupt bat roosting and reproduction**

Timber harvest can be a valuable tool in maintaining important habitat components for the Indiana bat. The Desired Condition and Standards found in Management Prescription 8E4a and 8E4b discuss the conditions timber harvest may be used to maintain or restore and the constraints on such timber harvest to ensure protection of the Indiana bat. To avoid disruption during bat roosting and reproduction, a standard has been added to the Final RLRMP specifying timing restrictions for timber harvest.

**402. The Forest Service should examine harvested trees for the 'incidental take' of bats.**

Incidental take is discussed and quantified in the Biological Opinion completed by the U.S. Fish and Wildlife as a result of formal consultation.

**403. The Forest Service should analyze all mineral development activities, timber harvest, and similar management actions for cumulative effects on the Indiana bat.**

**404. The Forest Service should analyze the impact of increase timber harvest on the Indiana Bat.**

**405. The Forest Service should conduct management activities only after providing mitigation efforts to enhance the viability of the Indiana bat.**

**406. The Forest Service should adequately analyze the effects of forest wide standards for timber management on the Indiana bat.**

Analysis of effects on threatened and endangered species are analyzed and discussed in the EIS Chapter 3, Biological Environment for both terrestrial and

aquatic species. A Biological Assessment was also completed in conjunction with the FEIS and forwarded to the U.S. Fish and Wildlife Service. They will issue their Biological Opinion on the Final RLRMP and FEIS prior to the Record of Decision being signed. Biological Opinions are not issued on draft documents. Species proposed for federal listing are included in the viability evaluations for both terrestrial and aquatic species, along with other species of viability concern. A Biological Evaluation has been completed for these species in conjunction with the FEIS. The Biological Assessment, Biological Evaluation, and Biological Opinion are all available on the CD-Rom that accompanies the FEIS and Final RLRMP.

**407. The Forest Service should address questions and issues related to the biological opinion regarding bats and management actions.**

We initiated formal consultation with the U.S. Fish and Wildlife Service in August 2003 under provisions of the Endangered Species Act. This consultation covered all 35 federally listed threatened and endangered species known or that potentially may occur on the Forest and may be affected by Forest management. The Indiana bat was included among this group of species.

**408. The Forest Service should perform site-specific surveys for endangered species when suitable habitat is present.**

We will follow provisions of the Endangered Species Act (ESA) and Forest Service Manual (FSM) with regards to project level analysis for threatened and endangered species.

**409. The Forest Service should allow cattle grazing near Indiana bat habitat.**

We have modified Management Prescription 8E4 (Primary and Secondary Hibernacula Protection Areas) to allow grazing to maintain open woodland and grassland conditions suitable for Indiana bat swarming, foraging, and roosting.

**410. The Forest Service should protect all significant caves and cave systems within the Skydusky Hollow region.**

**To comply with the Federal Cave Resources Protection Act**

**To protect the allogenic recharge area**

**Because air and water passages for cave systems connect Federal and private lands**

**To include caves on private lands**

**Because the caves provide bat habitat**

**411. The Forest Service should designate the Long Spur Roadless Area as 8.E.4 Indiana bat habitat.**

An Indiana Bat Hibernacula Protection Area (8E4) associated with the Skydusky Hollow cave (known as the Newberry-Bane cave) has been added to the Final LRMP. This cave is not currently designated as significant and s located on private land in Bland County, Virginia. Objective 10.01 on page 2-16 of the PRLRMP calls for evaluation of Forest caves to determine cave significance using the rating system in Appendix H. We acknowledge there are several caves and extensive cave systems located in the Skydusky Hollow area. With the addition of the Indiana bat prescription (8.E.4) and adjacent prescription of Backcountry - Nonmotorized (12.B), found on the southeast side of Walker Mountain, the Newberry-Bane cave and karst resources are well protected.

## BALD EAGLE

**412. The Forest Service should specify that annual surveys of bald eagles will be conducted.**

No bald eagles are known to occur on the Forest. They are known to fly over the Forest during migrations but all nesting sites known at this time are on private lands away from the Jefferson National Forest. We will follow provisions of the

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Endangered Species Act (ESA) and Forest Service Manual (FSM) with regards to project level analysis for threatened and endangered species.

## NORTHERN FLYING SQUIRREL

**413. The Forest Service should specify objectives and standards to promote the northern flying squirrel, spruce-fir habitat, and other threatened and endangered species.**

**To include presence or absence data and habitat monitoring**

Goals, objectives, desired conditions, and standards both Forestwide and in management prescriptions 4K3 (Mt Rogers Crest Zone Special Area) and 4K4 (Whitetop Mtn Special Area) provide for restoration of red spruce and Fraser fir forests to provide additional habitat for the northern flying squirrel. This will also provide habitat for sensitive and locally rare species that are associated with spruce/fir forests. Inventory and monitoring of northern flying squirrels is conducted in association with biologists from the Virginia Department of Game and Inland Fisheries and various universities.

**414. The Forest Service should create corridors of connecting habitat and habitat restoration within specified locations.**

**To benefit the northern flying squirrel**

The FEIS and Final RLRMP have been modified to better address the habitat restoration and corridor connections for the northern flying squirrel. We initiated formal consultation with the U.S. Fish and Wildlife Service in August 2003 under provisions of the Endangered Species Act. This consultation covered all 35 federally listed threatened and endangered species known or that potentially may occur on the Forest and may be affected by Forest management. The northern flying squirrel was included among this group of species.

**415. The Forest Service should place emphasis on the expansion of spruce-fir habitat.**

**To increase the spruce-fir forest to historic conditions**

**To increase populations of the northern flying squirrel**

**416. The Forest Service should specify objectives to increase the area of montane spruce-fir and northern hardwood forests.**

**To be consistent with plan sections for threatened and endangered species**

The FEIS includes 7 alternatives, each with different combinations of responses to the 20 significant issues. Alternatives B and G best address the views expressed in these comments. Alternative I restores key corridors and habitats for the northern flying squirrel while also maintaining key high elevation meadows that led to the congressional designation of Mount Rogers as a National Recreation Area. Chapter 3 of the EIS describes differences between alternatives and the effects on species. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments. See also Response #414.

**417. The Forest Service should develop another standard that prohibits camping in spruce-fir habitats.**

The spruce-fir habitat mentioned by this commenter lies within the Mount Rogers National Recreation Area which is managed according to the legislation that established this area. Prohibiting camping would not be consistent with a National Recreation Area designation. We have, however, completed a Limits of Acceptable Change process in the Mount Rogers High Country and incorporated relevant aspects of this process into the RLRMP as desired conditions, objectives, and standards. See also Responses #414 and 415.

## LOCALLY RARE SPECIES

**418. The Forest Service should specify all state-listed plants and animals, and consider the effects of management actions on these species.**

**ch3-393 Because sensitive species were arbitrarily reclassified as locally rare**

**To include coal skinks**

The viability analysis for both terrestrial and aquatic species considered all species of viability concern, regardless of their classification. Although the coal skink was known to occur on the George Washington National Forest, it was undiscovered on the Jefferson National Forest until this past field season after the DEIS was published. We have added it to the terrestrial viability analysis in the FEIS.

We agree on the need to identify and protect, maintain, or enhance locations where viability concern species occur, especially when these occurrences are outside of areas targeted for optimal protection and management (e.g., rare communities). Site protection is generally considered and provided at the project level through site-specific environmental analysis. In addition, known locations of viability concern species can be used during plan implementation to select sites for projects designed to maintain or restore important habitats. Because of their site-specific nature, these considerations are plan implementation functions that are more appropriately addressed outside of the plan. Ultimately, our success at meeting viability requirements must be viewed from the perspective of the entire planning process, which includes not just the strategic forest plan, but also plan-to-project considerations, site-specific project analysis, and monitoring feedback. We believe the treatment given to species viability in the Revised Plan and EIS provides us with a solid, and much improved, strategic framework from which to meet species viability requirements as the RLRMP is implemented and monitored.

**419. The Forest Service should establish 8.0 salamander areas, including protection of salamanders other than the Peaks of Otter salamander.**

While not specifically identified as salamander areas, management prescription 4K3 and 4K4 provide protection for the rare Weller's and pygmy salamanders.

## PEAKS OF OTTER SALAMANDER

**420. The Forest Service should fully implement the Peaks of Otter habitat conservation assessment and agreement, and place this salamander at the top of management priorities for the Glenwood Ranger District**

**421. The Forest Service should conduct a meeting of the conservation team to review Forest Service management plans for the Peaks of Otter salamander.**

**To implement the habitat conservation assessment and agreement**

**422. The Forest Service should prohibit clearcutting, development, and road building In Peaks of Otter salamander habitat**

The Conservation Agreement for the Peaks of Otter salamander was incorporated into the PRLRMP and the range of the salamander was given its own management prescription 8E2 Convening the conservation team is not required and all parties have had the opportunity to comment.

**423. The Forest Service should not allow any type of leasing in Peaks of Otter salamander habitat.**

**424. The Forest Service should specify that habitat conservation areas for the Peaks of Otter salamander will not be available for mineral leasing (including gas and oil).**

Language on mineral leasing has been changed to be consistent with the Conservation Agreement.

**425. The Forest Service should specify the range of the Peaks of Otter salamander in the management prescription and maps, in a consistent manner.**

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A clear map showing the primary and secondary conservation areas for the salamander has been incorporated into the PRLRMP.

**426. The Forest Service should specify whether standards for the primary or secondary conservation area for the Peaks of Otter salamander apply for management prescriptions.**
To preclude use of secondary conservation standards and timber harvest

The standards in 8.E.2 will apply within the mapped range of the salamander. When this management prescription overlaps with other management prescriptions the more restrictive will apply. Whether primary or secondary conservation zone restrictions apply has been clarified in the appropriate prescriptions.

**427. The Forest Service should designate large conservation areas for the Peaks of Otter salamander and provide connectivity between units.**
To ensure long-term species survival

**428. The Forest Service should designate all of the primary habitat conservation areas for the Peaks of Otter salamander as Primary 8E2a, as it appears in the 1997 Habitat Conservation Assessment.**
Land allocations in the Peaks of Otter salamander habitat conservation area have been adjusted in the Final RLRMP in order to respond to this comment. Also, a clear map showing the primary and secondary conservation areas for the salamander has been incorporated into the PRLRMP. The standards in 8.E.2 will apply within the mapped range of the salamander. When this management prescription overlaps with other management prescriptions the more restrictive will apply. Whether primary or secondary conservation zone restrictions apply has been clarified in the appropriate prescriptions.

**429. The Forest Service should place all Peaks of Otter salamander habitat as off-limits to timber harvest, roading, and other disturbance.**
The Conservation Agreement for the Peaks of Otter salamander was incorporated into the PRLRMP, and the range of the salamander was given its own management prescription 8E2 in order to protect this species from disturbance.

**430. The Forest Service should specify research needs for the Peaks of Otter salamander and mussels.**
Appendix I, Research Needs has been updated in the Final PRLRMP as a result of this comment.

## Management Indicator Species

**431. The Forest Service should identify management indicator species and conduct studies to examine fragmentation and edge effects.**

**432. The Forest Service should specify objectives and strong, numerical, nondiscretionary standards and monitoring requirements for management indicator species.**

**433. The Forest Service should conduct viability analysis on turtles and include turtles as management indicator species.**

**434. The Forest Service should specify details regarding use of the pine warbler as a management indicator species, and disclose full environmental factors for edge effects**

**435. The Forest Service should include plants as management indicator species.**

**436. The Forest Service should not use habitat types as indicators for species viability.**
Because a mix of successional habitat does less well for species that need mature forests

Because statements about habitat elements with the highest risk species are not supported by species / habitat relationship tables

**437. The Forest Service should identify management indicator species, other than trees, related to mast production.**

**438. The Forest Service should provide explanation and documentation for the elimination and**

**reduction of management indicator species, and the selection of management indicator species and monitoring methodologies.**

Because the Forest Service appears to be trying to avoid its congressional mandate to protect species diversity

Because the proposed approach violates NEPA

Because the proposed approach violates the National Forest Management Act

Comments contend that the set of selected Management Indicator Species (MIS) are inadequate to represent all species of viability concern. As discussed above, indicator species are but one part of our biological monitoring program. We have made no effort to select MIS to represent all species of viability concern, nor is there a requirement for us to do so. MIS, as described in 36 CFR 219.19, serve a variety of purposes during forest planning, not all of which are relevant to species viability. Only where appropriate are MIS selected for the Revised Plan "because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities" (36 CFR 219.19 (1)). The Process Record for Management Indicator Species Selection contains the rational for selection of Forest MIS. Expected effects to amount and quality of habitat and to MIS population trends are analyzed and disclosed under the appropriate sections of the EIS, in compliance with both NEPA and NFMA. Some commenters correctly noted that we have de-emphasized the role of MIS in viability analysis. We have reduced emphasis on MIS because of the current state of science, which calls into question many traditional uses of the indicator species concept (see MIS Selection Process Record for a brief review). Nevertheless, our selection and use of MIS in this plan revision meets both the letter and intent of regulations.

**439. The Forest Service should specify numerous management indicator species, including plants, aquatic life, insects, fish, birds, and particularly, salamanders.**

To study forest health and comply with laws

Because a diversity of species would allow more comprehensive use of the management indicator species concept

Some commenters questioned the appropriateness of migratory birds as MIS and what they feel is our over-reliance on birds as MIS. These issues are addressed in the MIS Selection Process Record. In that document, we recognize the pros and cons of migratory birds as MIS, and discuss how the primary drawbacks may be overcome during monitoring and evaluation. As indicated earlier in this response, most species have some drawbacks as MIS. Our selection process indicates that birds often have the least serious drawbacks of candidate species and therefore are often the most appropriate MIS available.

**440. The Forest Service should not use common species and community level monitoring as (or in lieu of) management indicator species.**

Because there is no scientific support for this approach

Because management indicator species are supposed to include species with special habitat needs, threatened and endangered species, and non game species of interest

To comply with regulations and provide for accountability

When regulations were adopted in the early 1980s, use of MIS was deemed the best approach for addressing biological diversity. Today, their use as the sole or primary means of planning and evaluating biological diversity is overly simplistic. A tremendous amount of research and scientific publication has occurred over the past twenty years, giving us much greater insight into ecological interactions and ecosystem functions. We now have a much greater appreciation for the complexity

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of population responses, and the limitations of using one species as a "proxy" for whole communities (see literature cited in the MIS Selection Process Record). We also are more aware of the inherent difficulties in precisely monitoring populations of many species. As a result, we have reduced our emphasis on MIS during this round of planning, while staying in compliance with both the letter and intent of related regulations. At the same time, we have greatly increased emphasis on consideration of viability of many more individual species, and incorporated use of ecologically-based vegetation classification systems, newly developed by The Nature Conservancy and NatureServe. Use of this classification system includes recognizing and protecting rare community types. In addition, rather than focusing on a handful of individual species, our monitoring programs have increased emphasis on monitoring species groups and communities, such as birds, bats, fish, and rare communities, because this approach will give us much better information on more species and on overall system function. Where appropriate, individual species also will be monitored. We also will continue to work with our partners in Forest Service Research and at universities to encourage and support research on key biological issues that are too complex to be addressed through our monitoring programs.

**441. The Forest Service should not evade recent court rulings regarding management indicator species monitoring programs.**

**Because proposed proxy methodologies with the pileated woodpecker are inappropriate and legally insufficient**

The RLRMP includes provisions for monitoring populations of management indicator species (see Chapter 5). The approach to MIS selection and monitoring used in the RLRMP is designed to keep population monitoring meaningful, feasible, and in compliance with relevant statute, regulation, and case law, including recent court rulings.

**442. The Forest Service should include the brown-headed cowbird as a management indicator species.**

**To examine fragmentation and edge effects**

Although we did consider using the brown-headed cowbird, their populations would be most influenced by agricultural land use patterns on adjacent private lands. Thus, they were not selected as MIS.

**443. The Forest Service should subject analysis of species viability and management indicator species to peer review.**

We have and made several changes as a result.

**444. The Forest Service should adopt the entire group of salamanders as management indicator species.**

**Because salamanders are excellent indicators of forest health**

Commenters suggest salamanders should be selected as MIS, and they cite literature from scientific journals that support the appropriateness of salamanders as MIS. We have reviewed this literature and recognize the validity of the general points presented. However, other evidence from the scientific literature highlights inherent difficulties in monitoring trends of salamander populations. We have included the Peaks of Otter salamander as an MIS. We have amended our MIS Selection Process Record to reflect the diversity of opinion in the scientific literature, but until some of the uncertainties related to monitoring methods are worked out, we do not believe it wise to select additional salamanders as MIS.

**445. The Forest Service should list the golden-winged warbler and woodcock as management indicator species.**

**Because they have a relatively high viability risk**

Species such as the golden-winged warbler, woodcock, and cerulean warbler were not selected as MIS because Forest populations are spotty, and local populations have winked in and out, regardless of management activities.

**446. The Forest Service should The Forest Service should disclose all effects related to management actions affecting the scarlet tanager and hooded warbler.**

The discussion of effects on the hooded warbler and scarlet tanager has been modified in the FEIS as a result of this comment.

**447. The Forest Service should not use the same management indicator species for all alternatives.**

**Because each alternative is supposed to represent different management regimes and objectives**

Regulations related to MIS state: "Planning alternatives shall be stated and evaluated in terms of both amount and quality of habitat and of animal population trends of the management indicator species" (36 CFR 219.19(2)). MIS are not actions or outputs, the variables that typically vary by alternative. They are planning tools, used to "indicate" management effects by alternative. Changing MIS with each alternative would greatly reduce our ability to use them to compare and contrast effects across alternatives, and is not consistent with our reading of regulation intent.

**448. The Forest Service should explain why the proposed "community level monitoring" methodology reduces the variability inherent in looking at an individual species and provides more accurate information on the status of the community and the health of aquatic systems**

We chose to monitor aquatic communities rather than MIS for the following reasons: The use of MIS is controversial because it is based on the assumption that suitable habitat for the indicator is also suitable for other associated species. For a species to be a good indicator of changes in habitat, it has to be one of the most sensitive members of the community to a particular stressor. These species are often rare and/or difficult to monitor. Species that exhibit these characteristics show inconsistent patterns that cast doubt on their usefulness as indicators. Researchers (citations available upon request) have found that fewer samples are needed to precisely estimate community level attributes than to estimate species attributes and recommend the use of species groups or community indices over individual species for stream fish studies.

**449. The Forest Service should not use common species and community level monitoring as (or in lieu of) management indicator species**

**Because not all threatened and endangered species are associated with rare communities and streamside habitats**

We agree on the need to identify and protect, maintain, or enhance locations where viability concern species occur, especially when these occurrences are outside of areas targeted for optimal protection and management (e.g., rare communities). Site protection is generally considered and provided at the project level through site-specific environmental analysis. In addition, known locations of viability concern species can be used during plan implementation to select sites for projects designed to maintain or restore important habitats. Because of their site-specific nature, these considerations are plan implementation functions that are more appropriately addressed outside of the plan. Ultimately, our success at meeting viability requirements must be viewed from the perspective of the entire planning process, which includes not just the strategic forest plan, but also plan-to-project considerations, site-specific project analysis, and monitoring feedback. We believe the treatment given to species viability in the Revised Plan and EIS provides us with a solid, and much improved, strategic framework from which to meet species viability requirements as the Revised Plan is implemented and monitored.

**450. The Forest Service should conduct a salamander survey and implement steps to protect rare**

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**species.**
Based on science

As discussed in ch3-469, some individual species or species groups are identified as monitoring elements in the Monitoring Summary Table (Appendix G). Monitoring of these species and species groups is expected to continue through the life of the plan. Other species or species groups, such as salamanders, would be considered under Monitoring Task 33, which involves periodically prioritizing species or species groups for focused inventory and monitoring efforts during plan implementation. Such focused efforts will be designed to fill in information gaps, allowing reassessment of monitoring priorities over time.

**451. The Forest Service should include aquatic species as management indicator species.**
Because wild trout are not sufficient management indicator species

To ensure that plan element include those published in the draft environmental impact statement

To evaluate the effects of forestry and agriculture

To evaluate the effects of timber harvest and roads

To include stream monitoring objectives and enforceable mechanisms

We chose to monitor aquatic communities rather than MIS for the following reasons: The use of MIS is controversial because it is based on the assumption that suitable habitat for the indicator is also suitable for other associated species. For a species to be a good indicator of changes in habitat, it has to be one of the most sensitive members of the community to a particular stressor. These species are often rare and/or difficult to monitor. Species that exhibit these characteristics show inconsistent patterns that cast doubt on their usefulness as indicators. Researchers (citations available upon request) have found that fewer samples are needed to precisely estimate community level attributes than to estimate species attributes and recommend the use of species groups or community indices over individual species for stream fish studies.

**452. The Forest Service should include wild trout as a management indicator species.**
Wild trout are included as an MIS (PRLRMP page 2-9).

**453. The Forest Service should not rely on wild trout as a sufficient management indicator species for aquatic habitats.**
In addition to wild trout, the effects of management on aquatic species will be monitored using aquatic macroinvertebrates (Objective 3.01, PRLRMP page 2-5) as a community based assessment of stream health.

**454. The Forest Service should specify forest-wide management indicator species dependent on water quality.**

**455. The Forest Service should develop a community based assessment of stream health.**
To provide a better focus on stream health and water quality

In addition to wild trout, the effects of management on aquatic species will be monitored using aquatic macroinvertebrates (Objective 3.01, PRLRMP page 2-5) as a community based assessment of stream health, forest-wide.

**456. The Forest Service should not use the blackside dace as a management indicator species.**
Because the population may not be sufficiently substantial

Thank you. Blackside dace have not been identified as an MIS. There is a forest-wide objective to maintain a stable or increasing population trend for this species, since it is a federally listed species that is currently found on the Forest.

**457. The Forest Service should monitor nongame aquatic species**

**To monitor effects of mitigation for acidification and sedimentation**

The effects of management on aquatic species will be monitored using aquatic macroinvertebrates (Objective 3.01, PRLRMP page 2-5) as a community based assessment of stream health.

## FORESTED VEGETATION

### FOREST VEGETATION—GENERAL

**458. The Forest Service should modify or answer a number of questions concerning the DEIS's treatment of forested vegetation.**

The vegetation and habitat analyses are adequate for this strategic, programmatic level of planning. In most cases the response to individual questions raised are in the Terrestrial Species and their Habitat section of the EIS. However a few edits and/or modifications in the analysis will be made in the FEIS responding to individual comments. References to Objectives 18.01 and 18.02 in the Woodlands, Savannahs, and Grasslands section of the DEIS have been corrected to refer to the correct objectives. The analysis of Spruce Fir community types will be modified to recognize "natural restoration" that would occur. The SPECTRUM model will be re-run with a non-declining sustained yield constraint and Table 3-172 of the DEIS will be edited if necessary.

**459. The Forest Service should improve the cumulative effects section for Mesic Deciduous Forest.**

The Cumulative Effects discussion for the Mesic Deciduous Forest found on page 3-47 and 3-48 of the DEIS is entirely adequate for this strategic, programmatic level of planning. It includes potential activities on non-Forest Service that might possibly impact Mesic Deciduous Forests.

**460. The Forest Service should consider that many oak species are not shade intolerant, but rather of intermediate tolerance.**

This statement is absolutely correct. On page 3-50 of the DEIS the discussion of management activities that enhance oak regeneration focuses on thinning and prescribed burning. Such activities result in partial increase of light levels through removal of mid-stories and partial opening of the canopy. This discussion and effects analysis are consistent with the intermediate shade tolerance of oak species.

**461. The Forest Service should recognize that the classification used for major forest communities is a generalization.**

We agree that the classification used for the forest communities is a generalization. This is appropriate for a forest plan scale analysis.

**462. The Forest Service should clarify what will be done after 75% of montane spruce-fir and northern hardwood reaches mid- to late-successional condition and 50% reaches late successional condition.**

Forest Wide Standard FW-72 on page 2-21 of the PRLRMP states that any vegetation management performed in montane spruce-fir forests will maintain or restore the type and early-successional habitat will not be a valid purpose and need for this type. There are no further restrictions specific to northern hardwood forest types. These forest types would be available for harvesting subject to Management Prescription allocation, suitability for timber harvesting, and a myriad of standards and guidelines found throughout the Final RLRMP.

**463. The Forest Service should manage mature oak forests on a rotation to maintain the oak type.**

This comment focused on the Ruffed Grouse/Woodcock management prescription (management prescription 8E1). Standard 8E1-020 discloses that rotation ages for the shorter lived scarlet oak/black oak forest types will be 60-80 years, while

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upland hardwoods that contain other longer lived species of oak will be managed on a rotation of 80-100 years. Many species of oak begin acorn production at about age 40 and peak in the 50 to 60 year old range. Thus, these rotation ages are appropriate for maintenance of the oak types.

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**464. The Forest Service should not shorten the rotation ages for cove hardwoods in bear and turkey management areas.**

Rotation ages for cove hardwoods in management prescriptions 8A1 (Mix of Successional Habitats) and 8C (Black Bear Habitat Management) are, in fact, as long as or longer than any other wildlife management prescription. Rotation ages in these management prescriptions range from 100 to 120 years (PRLRMP, pgs. 3-113 and 3-122, respectively). Cove hardwood rotation ages range from 80 to 100 years or from 70 to 90 years in most of the other wildlife prescriptions. No other wildlife management prescription has a longer rotation age for cove hardwoods. (PRLRMP, pgs. 3-114 through 3-147).

**465. The Forest Service should specify that 50% of the area must be greater than 60 years of age for classification as mid- to late-successional forest under 8.A.1.**

The mid- to late- successional class is defined as beginning at age 40 primarily because eastern hardwood stands begin to produce significant amounts of hard mast at about age 40. Hard mast is a very important component for many wildlife species such as bear, squirrel, and turkey. Therefore, the age at which hardwood stands begin to produce adequate amounts of hard mast, especially upland hardwood stands dominated by oak species, is an important stage in stand development. We recognize that hard mast production is highly variable between species as well as individuals of the same species. Hard mast production in any given year is dependent upon many factors including climate and weather, insects and disease, stand density, size of trees, stand composition, and stand age. Many of these factors are either beyond our control (e.g. weather) or more appropriately considered at site specific levels (e.g. stand density). For the purposes of effects analysis and disclosure at the Forest Plan level, stand age and stand composition are excellent indicators of a stand's hard mast production capability.

**466. The Forest Service should manage Apple Orchard Mountain as mid- to late-successional forest.**

Thank you for your comment. The land allocations on Apple Orchard Mountain include 8E2, 4K1, and 12A, all of which emphasize mid- to late-successional forest conditions.

## MAST

**467. The Forest Service should monitor hard mast production.**

**Because the analysis of hard mast resources is weak**

**Because hard mast is important wildlife food**

**Because hard mast may decline in the future**

**468. The Forest Service should specify goals, objectives, and standards for hard mast, and discuss hard mast in document sections for wildlife and threatened and endangered species.**

**Because hard mast is an important wildlife food species**

Objective 11.05 on page 2-20 of the PRLRMP specifies maintenance of 28,000 acres per decade of forest community types that produce hard mast. Monitoring task 12 described in Appendix G of the PRLRMP specifically targets monitoring of trends in hard mast capability through routine annual inventories of forest composition and condition. The amount of forested land in hard mast producing forested community types in mid and late seral stages is a reasonable indicator of hard mast production. In creating this objective and monitoring element, we share

the concern that hard mast is important wildlife food and is concerned with possible declines in hard mast production in the future. The analysis of demand species, including white-tail deer and eastern wild turkey, considers hard mast production on pages 3-167 through 3-173 (DEIS). In these analyses, the desired condition of hard mast producing forests are contrasted with the existing condition and expected impact of the alternatives and the conclusion is made that all alternatives fully meet the desired levels of mast production (DEIS, pg. 3-172)

## SNAGS AND WOODY DEBRIS

**469. The Forest Service should favor the retention of large, standing snags.**
We agree and we do. See standards FW-31 and FW-45 in the PRLRMP.

**470. The Forest Service should define, in the standards, the adequate amount of snag and coarse woody debris needed for habitat.**

**471. The Forest Service should clarify management practices regarding snags and coarse woody debris.**
Amounts of snags and large woody debris is addressed in the PRLRMP Forestwide objectives and standards (OBJ 2.01, FW-11, FW-12, FW-14, FW-31, FW-45) Management Prescription 11 (Riparian Corridors) and in the DEIS Ch. 3-120.

**472. The Forest Service should provide for the protection and recruitment of large woody debris by retaining all trees within one site potential tree height of a stream.**
Riparian areas are managed for the recruitment and retention of large woody debris. Specific large woody debris needs are determined on the basis of stream characteristics. See Objective 2.01 in Chapter 2 and management prescription 11 in Chapter 3 of the PRLRMP.

**473. The Forest Service should evaluate the effects of large woody debris on recreational fishing**
**Because large woody debris contributed to nutrient cycling**

**Because large woody debris creates structure in streams and prevents erosion**

**Because large woody debris provides habitat and cover for aquatic and terrestial species**

**Because the height of a site potential tree exceeds 75 feet, which is wider than minimum buffer widths**

The objective of 200 pieces of LWD/stream mile may be met in part by LWD introductions, but mainly through passive natural processes. Thank you for your recommendation that in large-scale situations, passive process be utilized. A standard will be added addressing active recruitment of LWD and impacts to water-based recreation.

**474. The Forest Service should provide for the protection and recruitment of large woody debris as an important component of recent regional plans in forested environments.**
Objective 2.01 in the PRLRMP addresses this concern. In addition, Forestwide standards for ephemeral stream channels and Management Prescription 11 (Riparian Corridor) standards provide for the retention and recruitment of large woody debris in the PRLRMP.

## RARE COMMUNITIES

**475. The Forest Service should protect rare communities.**
**To include specifying objectives and standards**

**476. The Forest Service should examine its records of inventory and acquisition for evidence regarding the historic distribution and condition of rare communities.**
**Because the data will be useful, particularly for wetlands, high-elevation balds, and basic mesic forests**

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**477. The Forest Service should clearly delineate rare communities and allocation; provide specific direction for restoration; establish standards for monitoring, maintaining records, and surveying; identify and protect all special areas; and, establish goals, objectives, and standards for special areas and rare communities**

To establish consistency across forests.

**478. The Forest Service should remove prescriptions that conflict with Special Biological Areas.**

**479. The Forest Service should provide better protection for rare communities on the Jefferson National Forest.**

**480. The Forest Service should protect a number of rare communities.**

**481. The Forest Service should provide guidance that specifies how areas will be delineated and reassigned to a 9.F, Rare Communities, Management Prescriptions.**

**482. The Forest Service should protect several Special Biological Areas.**

The Virginia Department of Conservation and Recreation's Division of Natural Heritage was instrumental in the identification of rare communities and other special biological areas on the JNF. Their Technical Report 96-14 published in April 1996 (made possible through funding from the Forest Service) describes the process of record searches, scientist information, and field inventories used to inventory significant natural communities and other lands that support rare species. This initial report was supplemented by several additional reports. We will continue to work with the Natural Heritage Program to improve rare community inventories.

The PRLRMP adequately protects rare communities and Special Biological Areas, see management prescriptions 9F and 4D which include objectives and standards. We have reviewed the management prescriptions that overlap with Special Biological Area boundaries with Virginia Division of Natural Heritage to ensure all rare elements within Special Biological Areas are protected.

As rare communities are located and mapped, they will be evaluated for allocation to the Rare Community Management Prescription (9F) through the Forest Plan amendment process. The RLRMP indicates that rare communities will be monitored for number and acreage of occurrence, condition (which includes presence of rare species), management needs, and management accomplishments. This focus will ensure that rare communities continue make a critical contribution to community and species diversity on the Forest.

**483. The Forest Service should specify clear direction for implementing restoration of rare communities.**

**484. The Forest Service should protect or restore rare communities.**

And distinguish between "restore" and "expand"

Some commenters desire to see more detail on what activities are likely to be involved in rare community maintenance and restoration. Maintenance includes protection from adverse effects of management activities, recreational uses, and invasive nonnative species, where warranted. Restoration will primarily involve restoring composition, structure, or function within existing rare communities where these characteristics are outside desired ranges. In some cases, restoration may involve expanding or reestablishing rare communities where they once likely occurred. Primary management needs for maintenance and restoration are indicated in rare community definitions in Appendix E of the RLRMP. Because of the variety of needs that may arise, it is not desirable to get too specific about, or to limit, the kinds of activities that may be involved in maintenance or restoration of rare communities. These types of decisions are appropriately made at the site-specific project level and not at the broad strategic level of a Forest Plan.

**485. The Forest Service should consider the differences between Management Prescriptions 4.D and 9.F.**

We agree. Threatened, Endangered, Sensitive, and locally rare species are

protected regardless of which management prescription they are found. This is covered in Forestwide Direction in Chapter 2 of the RLRMP. Both management prescriptions 9F and 4D emphasize the perpetuation and/or restoration of these species. The different types of forest communities, rare or common, will dictate the types of management activities that are appropriate. A table has been added to management prescription 4D describing these special biological areas and the species known to occur there.

**486. The Forest Service should change the Management Prescriptions for the Dismal Creek watershed to comply with recommendations of the Virginia Department of Natural Resources.**
We looked at and made adjustments to the management prescriptions allocations in this area.

**487. The Forest Service should analyze and protect rocky outcrops and slopes.**
**Because rocky outcrops are important to various species**

**To protect rattlesnakes**

The RLRMP contains Forestwide Standards specifically for rare communities. Since Cliffs and Rock Outcrops are considered a rare community they will be managed in accordance with goals, objectives, and standards specific for Rare Communities (RLRMP Chapter 2 and Management Prescription 9.F).

Since timber rattlesnakes are associated with rock cliffs and rock outcrops, especially during times of hibernation, they are therefore protected by their association with this rare community.

**488. The Forest Service should continue to support the Rare Community classification.**
We will. See Responses #475 and #483.

**489. The Forest Service should examine appropriate areas for designation as Research Natural Areas.**
Areas have been examined as potential Research Naturals Areas (RNAs). No areas on the Forest are recommended at this time as RNAs. Most areas that may be suitable for RNA status are rare communities protected by both Forestwide standards and Management Prescription 9F.

**490. The Forest Service should place each natural heritage conservation area on the Virginia Registry of Natural Areas.**
The Management Prescriptions 4D and 9F have been modified to state that these areas may be nominated to the Registry.

**491. The Forest Service should explain that acreages of spruce fir restoration will occur in historically occupied areas.**
The discussion of spruce-fir restoration in the FEIS and Final RLRMP (Management Prescriptions 4K3 and 4K4) has been modified to include both acres of natural regeneration and active restoration through planting.

**492. The Forest Service should better explain why it proposes to maintain 2,200 acres of early successional habitat, but only 140 acres to restore montane spruce-fir communities.**
The discussion of spruce-fir restoration in the FEIS and Final RLRMP (Management Prescriptions 4K3 and 4K4) has been modified. The modified objectives in these two management prescriptions total approximately 1,160 acres of spruce-fir and northern hardwood restoration through both natural regeneration and active restoration through planting. The FEIS includes 7 alternatives, each with different combinations of responses to the 20 significant issues. Alternatives B and G best address the views expressed in these comments. Alternative I restores key corridors and habitats for the northern flying squirrel while also maintaining key high elevation meadows that led to the congressional designation of Mount Rogers as a National Recreation Area. Chapter 3 of the EIS describes differences between

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alternatives and the effects on species. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

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## OLD GROWTH

**493. The Forest Service should protect old growth forests.**

**494.**

For biodiversity and diverse ecosystems

**495.**

To benefit bears and interior songbirds

**496.**

To study dendrochronology and history

**497.**

By establishing standards to identify and protect old growth patches

The EIS and RLRMP do reflect the mandate presented in the "Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region" (June 1997). The RLRMP provides for present and future representation of old growth community types, their distribution, and variety of patch sizes. Existing old growth is protected through Forestwide and management prescription standards in the PRLRMP. Appendix D of the PRLRMP describes the strategy for considering additional old growth identified during project specific planning.

Wilderness and backcountry areas will eventually become old growth, and will serve as large patches or core areas of old growth in the not too distant future (less than 50 years). In the Final RLRMP, wilderness and backcountry areas comprise approximately 26% of the JNF. Many additional areas unsuitable for timber production will also develop old growth characteristics over time. 64% of the JNF is unsuitable for timber production in the Final RLRMP.

**498. The Forest Service should manage old growth forests.**

**499.**

For multiple reasons

**500.**

Based on science and the National Environmental policy Act

**501.**

To fulfill the Forest Service's forest management mandate

**502.**

Because science suggests the need for diverse forests

The regional guidance for conserving and restoring old growth forest communities outlines different approaches for managing old growth, which includes options from "doing nothing" to active management regimes of extended forest rotations designed to sustain a flow of replacement old growth stands over time. These options are reflected in Management Prescriptions 6A through 6E. The Forest Leadership Team and Interdisciplinary Team considered these options in determining which approaches would best address the old growth management issue. In addition to those areas allocated to a Management Prescription 6 Category, other areas allocated to other Management Prescriptions will also provide future old growth characteristics. Chapters 2 and 3 of the EIS compare and discuss old growth management by alternative.

**503. The Forest Service should manage and return all areas to old growth.**

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. The FEIS includes 7 Alternatives, each with slightly different approaches to old growth, although six of the alternatives do protect all existing old growth on the Forest. Alternatives G manages approximately half of the JNF as existing or future old growth. Alternative C, which was not analyzed in detail, comes closest to representing your views. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options for levels of old growth. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**504. The Forest Service should explain the reasoning for additional old growth on National Forest System lands.**

Due to the history of the JNF, less than 10% of the Forest remains as existing old growth. Although it is certainly true that more and more of the Forest will regain many old growth characteristics over the next 50 years, the majority of citizens felt it important to protect these last vestiges of our original forest. With the exception of Alternative F (the 1985 Forest Plan) existing old growth would be protected in all Alternatives. Under all alternatives, future old growth will result from areas being in prescriptions that are custodial in nature. As the forest matures, we will have more old growth, regardless of alternative.

**505. The Forest Service should manage old growth forests based on science.**

The issue of old growth forests is a social issue, not a science issue. There are no species on the JNF dependent upon old growth forests for their survival; however old growth forests are very important to many Americans. The EIS discusses the many values of old growth forests to both people and wildlife. The EIS includes 7 Alternatives, each with slightly different approaches to old growth, although six of the alternatives do protect all existing old growth on the Forest. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**506. The Forest Service should manage old growth stands on a rotation basis.**

Alternative F best meets your request. Active management, where co-dominant and dominant trees are removed, could be accomplished on a long rotation, but it would not allow for an accumulation of down dead wood. Thus, it would be hard to provide old growth conditions within a stand that is actively managed. The FEIS includes 7 Alternatives, each with slightly different approaches to old growth, although six of the alternatives do protect all existing old growth on the Forest. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**507. The Forest Service should specify that all lands within Prescription 6 will be unavailable for commercial timber harvest.**

Management Prescriptions 6A, 6B, and 6C are all unsuitable for timber production. Timber harvest is not allowed in 6A unless associated with valid existing rights. The forest communities assigned to 6B and 6C are dependent on or associated with fire or other disturbances. In certain limited situations, timber management may be necessary to sustain these communities on the landscape, for example in the event of a southern pine beetle epidemic. We feel the emphasis and desired condition descriptions in these two management prescriptions are clear in stating the reasons and situations when vegetation management might be accomplished with commercial timber sales. We chose not to use management prescriptions 6D and 6E where silvicultural practices using commercial timber harvest would be designed to mimic, create, or restore some old growth forest conditions on a sustained and regulated basis, in other words, suitable for commercial timber production. Although many of us on the Interdisciplinary Team felt these were viable management

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prescriptions, many citizens were skeptical and found them confusing, so we dropped them from all alternatives prior to issuing the DEIS.

**508. The Forest Service should create core areas of old growth of a minimum of 15,000 acres.**

**509.**

To accommodate natural processes

**510.**

By including areas around existing old growth patches

Wilderness and backcountry areas will eventually become old growth, and will serve as large patches or core areas of old growth in the not too distant future (less than 50 years). In the Final RLRMP, wilderness and backcountry areas comprise approximately 26% of the JNF. Many additional areas unsuitable for timber production will also develop old growth characteristics over time. 64% of the JNF is unsuitable for timber production in the Final RLRMP.

**511. The Forest Service should provide buffer zones around old growth communities.**

**512.**

To prevent loss of the resource due to activities in adjacent areas

There is no intention to buffer old growth areas within the DEIS. Given that 69% of the JNF will be in late-successional forest conditions under the most aggressive alternative (D) and 79-92% of the Forest will be in late-successional forest conditions under all other alternatives, buffer zones would be redundant (see DEIS, pages 3-97 through 3-107). Alternatives B and G allocate the most acres to old growth emphasis management prescriptions (6A, 6B, and 6C) and future old growth within backcountry and wilderness management prescriptions (See table 2-5 in the EIS).

**513. The Forest Service should provide for the identification and evaluation of additional old growth patches on National Forest System lands.**

**514. The Forest Service should provide a connection between existing old growth, possible old growth, and future old growth.**

There are a number of ways to meet the regional old growth guidance for having a "network" of large, medium and small old growth patches. These "patches" do not need to be specifically allocated to an old growth management prescription (6A, 6B, 6C). Both existing and future old growth characteristics can be met in other management prescriptions as well. When all the compatible prescriptions were mapped out and analyzed according to size and forest community type, a determination was made as to whether or not this "old growth network" was adequate, or if other specific old growth allocations were needed to fill in any "gaps" in the "network". In most cases, it was determined that the combination of the allocations of all the old growth compatible management prescriptions, along with the Forestwide standard on "existing old growth", that the resultant "old growth network" was sufficient to address the old growth issue. A map displaying this old growth network for the RLRMP has been added to the CD-Rom set of maps accompanying the Plan. Goals, objectives and standards for management of old growth can be found in Chapters 2 and 3 of the RLRMP. Appendix D of the RLRMP also discusses the strategy for identifying and allocating old growth patches during Plan implementation.

**515. The Forest Service should demonstrate how the categories of "well represented" old growth are determined.**

**516. The Forest Service should clarify the forest types considered "well represented."**

See Appendix D of the Forest Plan for identification of forest types that are considered well represented with existing old growth. Some modifications of this appendix were made between the Proposed and Final RLRMP to clarify the term "well represented."

**517. The Forest Service should clarify that there are a number of species dependent on old growth for their survival.**

**518. The Forest Service should better explain the interrelationship between old growth and some species.**

We are unaware of any old growth obligate species existing in Virginia. The biological significance of old growth is identified in the DEIS (3-104-105).

**519. The Forest Service should clarify the basis upon which the level and distribution of old growth is based on.**

Existing old growth occurs in small and medium sized patches across the Forest. It is primarily located in areas too steep or rocky to have been logged in the past. In addition, species composition and land ownership patterns have influenced its distribution. Future old growth will develop in large patches associated with wilderness and other custodial management prescriptions.

**520. The Forest Service should describe the desired future conditions for old growth on the forest.**

Desired conditions for old growth on the JNF are described in Management Prescriptions 6A, 6B, and 6C based upon the natural disturbance regime associated with the various types of forest communities found on the Forest.

**521. The Forest Service should not expand old growth area designations.**

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. Other people have requested more designated old growth areas. The FEIS includes 7 Alternatives, each with different approaches to addressing the old growth issue. Alternatives F and D provide lower levels of old growth than the other alternatives. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**522. The Forest Service should, in Standard FW-75, establish clear guidelines for protecting all existing old growth that is found.**

Standard FW-75 in the PRLRMP has been modified. Appendix D of the RLRMP goes into much more detail regarding newly discovered patches of existing old growth. This Appendix has also been modified for clarification.

**523. The Forest Service should explain why only 33,400 acres of old growth are in old growth management prescriptions when a little over 50,000 acres of existing old growth were identified in the PRLMP.**

Existing old growth within wilderness or backcountry prescriptions is allocated to 1A, 1B, 12A, 12B, or 12C because old growth characteristics and values are fully protected within these management prescriptions. For the Final RLRMP, a separate map has been added to show existing old growth, regardless of prescription on the CD-Rom that accompanies the Plan.

**524. The Forest Service should specify minerals language for old growth categories consistent with 6.A.**

The commenter requested that all categories of old growth contain a No Surface Occupancy stipulation for federal mineral leases, similar to management prescription 6A. The polygons allocated to management prescription 6A are typically small and easily avoided, whereas those in 6B and 6C frequently extend for long distances along sideslopes, spur ridges and ridgetops. Standard stipulations within a federal mineral lease allow us to protect important resources like old growth. In addition, we have specified controlled surface use stipulations in management prescriptions 6B and 6C. However, it may occasionally be necessary to cross a small section of a few of these management prescription areas with a road or pipeline when going around them is not an option due to their location on the land. Therefore, controlled surface use provides more flexibility to allow for a crossing.

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## NATIVE SPECIES

### THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES

## FOREST HEALTH

**525. The Forest Service should provide the status and trends of forest health threats.**
The Forest Health and Protection analysis is found on pages 3-199 through 3-215. Status and trend information is presented for the gypsy moth and hemlock woolly adelgid (pgs. 3-204 and 3-208, respectively, DEIS). However, status and trend information is lacking in the remaining analyses. The FEIS has been revised to include this type of information.

**526. The Forest Service should increase management actions to restore and maintain forest health.**
**Because forest health will benefit wildlife**

The Forest Health and Protection analysis is found on pages 3-199 through 3-215. For each of the insect and disease analyses, excepting the hemlock woolly adelgid, tables are provided that disclose the acres of management that would promote forest health by alternative. Alternatives A and D provide increased levels of management that would promote forest health as compared to Alternative I. Increased levels of management for improving forest health were considered.

## FOREST RESTORATION

### HISTORICAL CONDITIONS

**527. The Forest Service should not continue to manage Southern Appalachian forests as successional forests.**

**528. The Forest Service should consider the Cherokee National Forest archaeologist's material in the forest plan revision process.**

**529. The Forest Service should recognize that the proposed management approach is not consistent with natural conditions.**

**530. The Forest Service should accurately describe the historic dynamics of the Southern Appalachian forests as naturally uneven-aged.**

**531. The Forest Service should not base management decisions on a successional forest model.**
**Because it fails to accurately model the dynamics of Southern Appalachian forests**

**532. The Forest Service should recognize that the concept of historic range of variability fails to provide criteria for which ecosystem factors to measure.**
Information compiled by a Cherokee National Forest archaeologist, was considered during planning. It was distributed to staffs of all Southern Appalachian forests undergoing revision, and was reviewed by planners at the forest and regional levels. Points of agreement and disagreement were discussed at varying levels across these forests. There are many points of agreement, which are corroborated by a predominance of mainstream scientific literature. We agree that some major forest types in the Southern Appalachians are low disturbance systems that commonly regenerate through natural development of relatively small canopy gaps, and that frequent fire in these systems is not desirable. These areas of agreement are incorporated in the Revised LRMP and EIS through direction and analysis for mesic deciduous forests, which include cove, riparian, mixed mesophytic and northern hardwood forests. This direction and analysis considers the amount of these forests allocated to forest successional options 1 and 2 (which should be dominated by gap-phase processes), the need for canopy gaps within these forests, and the limited role of fire (see DEIS, page 3-43 through 3-48 and PRLRMP objectives 11.01, 11.03, and fw-145). There are, however, some of this archaeologist's

conclusions with which we disagree, as do some members of the academic and research communities with whom we have consulted.

The archaeologist's presentation of forest conditions in the late 1800s and early 1900s depends heavily upon the Ashe and Ayers report and descriptions contained in the field notes and maps of the tracts of land that were acquired for inclusion in the national forests. This archaeologist also has provided substantive literature (bibliography) to support his views. However, he rejects or ignores the substantial body of scientific literature (much of it published in the last 10 years) that contradicts his conclusions regarding the role of fire and other disturbance in maintaining upland oak and pine forest types.

Unlike the scientific literature used and cited during planning, this archaeologist's analysis has not been through the rigorous process of peer review, critique, and publication in mainstream scientific journals. The Forest Service contracted review of this archaeologist's analysis by Paul and Hazel Delcourt of the University of Tennessee, who have published widely on historical disturbance ecology. Their written review indicates areas of agreement and disagreement similar to those identified by forest planning teams. It also is important to note that this employee is an archaeologist and not an ecologist or forester, professions that are educated and trained to make ecological interpretations of forest condition data. In his paper, use of terms, lack of reference to the most current scientific literature, and resulting conclusions often do not reflect the best available science. Based on these considerations, we believe this archaeologist's analysis was given an appropriate level of consideration during planning.

Although understanding historical and pre-European settlement conditions provides an important context for conservation planning, restoring such conditions is not an overriding objective or legal requirement for plan revision. In most cases, ecological conditions have changed too much for this to be feasible, let alone desirable. Plan direction represents a decision on multiple-use management informed by the best science on disturbance ecology, not an attempt to recreate historical conditions.

Based on synthesis of the scientific literature, our understanding is that Southern Appalachian forests historically have been subject to highly variable disturbance regimes across the landscape. This variation resulted from the interaction of fire, wind, and other disturbance factors with the highly variable topography and edaphic conditions of the mountains. We disagree with the Cherokee National Forest archaeologist, and follow most current scientific literature, in recognizing that fire, primarily of Native American origin, played an important role in maintenance of upland pine and oak forests, and open woodlands, savannas, and grasslands. Compared to today, forest structure was likely more open on upland sites, due to the influence of fire, and more heterogeneous on lower slopes and coves, due to gap-phase dynamics of older forests. Overall, within-stand structures were likely variable due to the variable effects of natural disturbance factors. Many areas would not easily be categorized as either even-aged or uneven-aged, but some level and pattern of older residual overstory trees would almost always be present, even in areas providing important early-successional habitat. This variable structure can be approximated with uneven-aged, two-aged, and even traditional even-aged management systems, all of which involve retention of varying levels of overstory structure. A patchwork of uniform even-aged stands established by clean clearcuts is clearly outside the historical range of variation of forest structure and is also clearly not the desired condition for any portion of the national forest.

Although the Revised LRMP includes objectives for restoration of native fire-maintained habitats, we recognize that we will not be able to restore the influence of fire to the landscape to historical levels due to a variety of logistical and social reasons. Creation of early-successional forests can compensate for the loss of open

fire-maintained habitats for some species. So, although we recognize that the mix of types of early-successional habitats maintained under the Revised LRMP cannot reflect historical conditions, we have considered the overall abundance of these habitats within an historical ecological context to arrive at objective levels. As some of these fire-maintained habitats are restored, need for early-successional forest as habitat for some species will decline. However, need will not disappear; other species, such as ruffed grouse, depend upon the dense woody growth found in early-successional forests. In addition, other multiple-use considerations, such as need for habitat to support game species for recreation, ecological restoration of native forests, forest health considerations, and in some cases timber production, will continue to make creation of some level of early-successional forest desirable.

**533. Have made available for public comment the Cherokee National Forest archaeologist's research**

The information referenced in this comment is part of the public record and, as such, is available for public review. However, all research that the RLRMP is based on does not necessarily end up in the DEIS, which is circulated for review during the comment period. See also Response #527.

## INTEGRATED PEST MANAGEMENT

**534. The Forest Service should analyze the benefits of insect and disease in a healthy ecosystem.**

Page 3-120 of the DEIS discusses at length the value of snags, dens, and downed wood. Paragraph six states that snags and downed wood may be extremely abundant in areas affected by insects and disease. This discussion goes on to state that many species of potential viability concern are associated with these habitat components. Page 3-123 of the DEIS adds that the trend of increasing snags and downed woody debris is expected to continue as many threats expand their zone of influence with a reference to the Forest Health section of the DEIS. The benefits of insects and diseases are adequately disclosed.

**535. The Forest Service should address both the effects of insect and disease infestations and efforts to suppress these problems when addressing both growth and yield (premature mortality, harvest before analysis scheduled harvest is called for, etc.) and revenue estimations (harvest during uneconomical periods to suppress infestations, the change in revenue forecasts when using the cut and leave method, etc.).**

It was decided to not include insect and disease infestations projections into the growth and yield estimates because of the uncertainty with which to make projections in the long-run over what those level of infestations might be. We do have insect and disease simulators that we considered, but these were determined to be useful for only a 10-20 year projection. The growth and yield estimates used in the SPECTRUM analysis used projections over 100 years. Therefore, it was decided to address this in a narrative fashion and explain in the EIS that the volumes do not include the effects from insects and diseases, so the actual volumes removed will likely be less than projected; and to include a description of what the effects from insect and disease infestations will likely be in the near future.

**536. The Forest Service should indicate when intervention is necessary to stop episodic outbreaks of insects and disease.**

Goal 13 of the PRLRMP (page 2-20) indicates that intervention may be prudent when the maintenance or restoration of native tree species is threatened. Objectives 13.01 and 13.02 list the priorities for various threatened resources relevant to the gypsy moth and southern pine beetle as these are two of the more serious threats to the forested ecosystems.

**537. The Forest Service should consider that mortality caused by native diseases and insects are periodic and do not steadily increase.**

The discussion of the southern pine beetle (SPB) on page 3-213 of the DEIS begins

by stating "Southern pine beetle … infestations have occurred cyclically throughout recorded history in the South. This is a native pest. SPB outbreaks move from low levels of infestation to high levels over several years." However, the same is not true of oak decline. The discussion on pages 3-209 and 210 of the DEIS describe a disease complex that results from several predisposing factors that aggregate to create a decline condition. A major component of the risk factor for oak decline is increasing age. As oak stands continue to age, oak decline is expected to become more prevalent. "The entire Jefferson National Forest has been experiencing droughty conditions for the past 3 years. This, coupled with the advancing age of our oak forests, results in an existing condition that is ripe for serious oak decline incidence." (DEIS, pg. 3-212).

**538. The Forest Service should provide scientific evidence that forest health treatments do not increase the incidence of insects and disease.**

Please refer to "Oak, S.W., C.M. Huber, and R.M. Sheffield. 1991. Incidence and impact of oak decline in western Virginia, 1986." and "Oak, S.W., D.A. Starkey, and J.M. Dabney. 1988. Oak decline alters habitat in southern upland forests." with reference to oak decline. The DEIS incorporates by reference both the Suppression of the Southern Pine Beetle FEIS and the Gypsy Moth Management in the United States: A Cooperative Approach FEIS (DEIS, page 1-2). Both of these EISs disclose the role of management in treating these pests, although the Gypsy Moth EIS only briefly mentions vegetation management and focuses on more direct pesticide treatments. The discussion on page 3-206 of the DEIS summarizes and adapts research by Kurt Gottschalk on the ability of silviculture to reduce gypsy moth impacts. However, citations to this body of work are absent from this discussion. Appropriate citations have been added in the Final EIS. The commenter specifically cites "Gypsy moth and regenerating Appalachian hardwood stands" (Gottschalk, 1999) and concludes that the gypsy moth alone would cause our forest to become less susceptible and/or vulnerable without the use of silviculture. Indeed, the analysis on page 3-205 of the DEIS acknowledges this when it states "Long term detrimental changes in forest composition and structure following gypsy moth outbreaks will be most frequent under conditions corresponding to high oak decline risks;" What this commenter fails to acknowledge is the potentially catastrophic loss of hard mast production, shading, and intact forests which are described in the DEIS. The commenter goes on to state that we ignored/devalued the ability of a no logging alternative to achieve reduced vulnerabilities and susceptibilities. The impact on gypsy moth risk at the end of 10 and 50 years across all alternatives is disclosed in Table 3-107 on page 3-206; a "no logging alternative" is not portrayed in this table because that alternative was considered, but not carried forward in detail. However, Alternative G is quite close to a "no logging" alternative and the impacts of alternative G are disclosed.

**539. The Forest Service should consider new methods for reducing the effects of insect and disease outbreaks.**

On page 2-22 of the PRLRMP several standards address this issue. Under the gypsy moth heading, Standards FW-77 & FW-81 direct the use of Integrated Pest Management (IPM) strategies and recognize the options of "[d]evelopment, improvement, or experimental testing of natural enemies…" respectively. IPM strategies include new and innovative treatment methods that have the least impact on the environment. Under Southern Pine Beetle FW-82 again invokes IPM strategies. As for the hemlock woolly adelgid, there simply are no effective treatments appropriate for the general forest area, as disclosed in the DEIS on page 3-209. Meanwhile, there is no Standard preventing us from using new strategies in the future (subject to all other pertinent laws, regulations, and policies) for any forest pest, including the hemlock woolly adelgid.

**540. The Forest Service should protect the communities of native trees that are threatened by**

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**exotic bugs and blights.**
By not harvesting them or any timber where they grow

Vegetation management, often accomplished through commercial timber harvests, can serve as one of many tools to benefit forest health. The Forest Health analysis (pgs. 3-199 through 3-215, DEIS) discloses the positive impact that timber harvesting can have on various insects and diseases such as reducing susceptibility and vulnerability to the gypsy moth, halting active southern pine beetle (SPB) infestations, reducing SPB risk, and reducing the risk of oak decline by reducing the age/site index ratio (pgs 3-202 to 3-214). Alternatives E and G would implement minimal harvesting and the impacts of these alternatives were considered and disclosed in the DEIS.

The Forest Health analysis in the DEIS discloses the positive impact that timber harvesting can have on various insects and diseases (pgs 3-202 to 3-214). Forest wide standards FW-77 and 82 (page 2-22 of the PRLRMP specify the use of Integrated Pest Management in combating the gypsy moth and southern pine beetle, which includes the use of cultural treatments to reduce risk. Specific standards specifying the use of cultural treatments to reduce the occurrence of insects and diseases in general are found throughout Chapter 3 of the PRLRMP. For example, Standard 8A1-008 states "The forest health strategy is to minimize the occurrence of pest problems by managing host-type conditions. Suppression of pests, both exotic and native, is accomplished with all available integrated pest management tools." Several alternatives that would result in a higher annual timber harvest volume (Alternatives A, B, D, and F) as compared to Alternative I were examined and the impacts to Forest Health were disclosed on pages 3-202 through 3-214 of the DEIS. Alternative D strives to achieve a balanced age class distribution.

Gypsy Moth

**541. The Forest Service should not spend money to combat the gypsy moth.**
Because the agency ensures its survival

We do not plan to spend "large funds to combat the gypsy moth" as the comment alleges. The first sentence in the disclosure of direct and indirect effects of the gypsy moth (DEIS, pg. 3-205) states that due to economic and environmental concerns only a very small amount of the forest would receive aerial application of insecticides targeting the gypsy moth. The discussion goes on to state that the focus of such efforts would be on high valued resources. Objective 13.01 on page 2-21 of the PRLRMP supports this focus of treatment efforts on critical or high value resources.

Southern Pine Beetle

**542. The Forest Service should allow the Southern Pine Beetle to run its course.**
And let natural pine forests replace pine plantations

We operate under several mandates, not the least of which are the Multiple Use Sustained Yield Act of 1960 (MUSY), which directs administration of renewable surface resources "[f]or multiple use and sustained yield of several products and services obtained therefrom.", and the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA, as amended), which states forested lands "[b]e maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth, and conditions of stand designed to secure the maximum benefits of multiple use sustained yield management…". The Southern Pine Beetle (SPB) can have serious ecological implications for many resource areas as summarized on page 3-213 of the DEIS. Outbreaks of this pest can jeopardize these mandates of

MUSY and RPA. Thus, to let SPB "run its course" could be construed as a violation of MUSY and RPA. Finally, "natural pine forests" can be quite susceptible to this pest; it is not simply a pest of plantations. While less than 1% of the Forest is comprised of pine plantations, fully 22% of the Forest is considered to be at moderate or high risk for the SPB (DEIS, pg. 3-214).

Pesticides

**543. The Forest Service should not allow the use of insecticides and herbicides within riparian areas, except where needed to conserve native flora and fauna.**

**544. The Forest Service should prohibit the presence or use of pesticides within 30 feet of intermittent streams.**

**545. The Forest Service should prohibit the presence or use of pesticides within 25 feet of channeled ephemeral streams.**

We are required by law to adhere to all restrictions, including protection of riparian areas, imposed by the pesticide label. These restrictions are imposed by the Environmental Protection Agency based on extensive risk analysis, including risks to aquatic systems. Additionally, several Standards in the PRLRMP address the use of insecticides and herbicides in riparian areas. FW-88 has been expanded to restrict application of insecticides within 200 feet of perennial streams or open water (aerial) or within 30 feet of the same areas (ground). FW-98 on page 2-25 of the PRLMP places similar restrictions on herbicides. Standard 11-016 also places restrictions on the use of insect and disease control measures, including the use of insecticides and herbicides in riparian corridors.

**546. The Forest Service should consider the impact of pesticides and herbicides.**

The impacts of the vast majority of pesticides and herbicides used by the Forest Service are analyzed in separate EISs. Page 1-2 of the DEIS identifies three of these EISs (Gypsy Moth, Southern Pine Beetle, and Vegetation Management in the Appalachian Mountains) that provide supporting documentation for some of the PRLRMP decisions. Thus, the impacts of various herbicides and pesticides are considered and incorporated by reference in the DEIS. Furthermore, we are required by law to adhere to all restrictions imposed by the pesticide label. These restrictions are imposed by the Environmental Protection Agency based on extensive risk analysis

**547. The Forest Service should provide standards for the use of herbicides, pesticides, and insecticides.**

Approximately 20 forest-wide standards regarding the use of pesticides (which includes herbicides and insecticides) are found on pages 2-23 through 2-25 of the PRLRMP. The vast majority of these standards focus on herbicide use as vegetation manipulation is the most prevalent management activity utilizing herbicides on the Forest. However, based on the comments received a few edits and additions to these Forest Wide Standards were made in the Final Revised Plan.

## NON-NATIVE INVASIVE SPECIES

**548. The Forest Service should control garlic mustard and other invasive species, instead of building roads.**

The two activities are not mutually exclusive.

**549. The Forest Service should only plant native species on forest lands, and restore areas planted with non-native species to native species.**

We have standards regarding use of non-natives. We will comply with RO policy.

**550. The Forest Service should consider the impacts of non-native species on the Jefferson National Forest.**

We did, see DEIS Chapter 3, page 3-199.

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**551. The Forest Service should address the root causes of non-native plant infestation.**
This has been added.

# TRANSPORTATION AND FACILITIES

## FOREST TRANSPORTATION SYSTEM (GENERAL)

**552. The Forest Service should provide an appropriate transportation system.**
Thank you for your comment. This is Forest Service policy.

**553. The Forest Service should emphasize the importance of the transportation system.**
Access and road management was identified as one of the significant issues considered in defining the alternative management strategies. Science-based roads analyses at the appropriate scales (forest, watershed and project-scales) will be conducted as required in FSM 7712. The objectives of roads analyses are to provide Forest Service planners and decisionmakers with critical information to develop road systems that are safe and responsive to public needs and desires, are affordable and efficiently managed, have minimal negative ecological effects on the land, and are in balance with available funding for needed management actions.

**554. The Forest Service should develop more access.**
This comment is best addressed at a watershed or project decision level. An interdisciplinary science-based roads analysis at the appropriate scale will be used to inform planners and decisionmakers of needs for additional access and to recommend priorities.

**555. The Forest Service should better provide roads that meet the recreational needs of an aging population.**
Roads are designed to fit the activity and level of development for the developed site. In general, this would include the needs for aging/elderly individuals. There are no specific requirements for designing projects for elderly or other age groups. However, requirements for accessibility and general access are strictly adhered to, and the requirements for accessibility are typically more stringent than the needs for persons of advanced age. Accessibility design considerations are incorporated into every project where it is physically and geometrically possible to provide accessible facilities.

**556. The Forest Service should pave forest roads with permeable methodologies to stop run-off and increase user access.**
The type of road surface specified is more logically addressed at the site-specific project level.

**557. The Forest Service should clarify its proposal to transfer road maintenance to the Virginia Department of Transportation.**
Only about 24 miles of road forestwide have been identified as potential candidates for turning over to VDOT. These are roads which are predominantly for uses other than Forest access. Many of these roads have a number of residences and are used for access to work, school, and other uses. In these cases, maintenance by the State Road Agency would provide for better and more inclusive maintenance. For example, currently we cannot and do not provide plowing of snow. VDOT would be able to provide this service as well as more frequent and more consistent routine maintenance.

**558. The Forest Service should keep roads a long distance for trails.**
**To improve hiker safety**

It is undesirable and generally discouraged to collocate roads and trails or to place

roads and trails within close proximity. However, there are situations where this cannot be prevented. These situations are considered on a case-by-case basis. Decisions include consideration of the anticipated level and type of vehicular use and the level and type of trail use. Safety is always a primary consideration in road and trial layout. These types of decisions are appropriately made at the site-specific project level and not at the broad strategic level of a Forest Plan.

**559. The Forest Service should better maintain fewer roads on the forest.**

We conduct roads analyses, at appropriate scales, to: (1) identify transportation management opportunities and priorities; (2) assess transportation management needs, long-term funding, and expected ecosystem, social, and economic effects; and (3) establish transportation management objectives and priorities. Generally, the watershed-scale roads analysis will be the most appropriate scale to identify and prioritize roads that are no longer needed or those roads needing major improvement. Road management decisions and timing of their implementation may be affected by several factors, such as public safety, resource effects and availability of funding.

**560. The Forest Service should not weaken standards and guidelines for determining whether or not to close or seasonally restrict access to roads.**

The Final RLRMP has been changed to incorporate these standards from the 1985 Forest Plan as a result of your comment.

**561. The Forest Service should limit use of administrative roads so as to minimize impact to threatened, endangered, sensitive, or locally rare species.**

Administrative road use is by definition, limited to only the travel that is necessary for proper monitoring and management of the Forest's resources. Users are typically Forest Service or State agency employees, like the Virginia Department of Game and Inland Fisheries. Typically, these roads are used minimally, and JNF or State employees are aware of sensitive resources and responsibly consider potential impacts.

**562. The Forest Service should develop standards to ensure that aquatic resources are protected from damage due to increase road use and maintenance.**

Standards to protect aquatic resources are provided in Chapter 2, Forestwide Direction, Watersheds (p 2-2 through 2-7, DEIS) and Roads (p 2-50 through 2-52, DEIS) and Chapter 3, Management Prescription 11, Riparian Corridors (p 3-167 through 3-174, DEIS).

## Roads Analysis

**563. The Forest Service should Integrate the roads analysis process into the forest plan revision process**

**564. The Forest Service should conduct the Roads Analysis Process.**

**565. The Forest Service should incorporate the analysis of the road system into the draft plan revision before it becomes final and involve the public in the Roads Analysis Process.**

A forest-scale roads analysis has been completed to inform the decision as required in FSM 7712. The roads analysis process is not a NEPA decision process and therefore does not require a formal public scoping and comment period. Appendix A of the EIS provides a summary of the extraordinary public involvement during the planning process from 1993 through the DEIS and PRLRMP. The public was asked to identify their issues during the formal scoping periods on the RLRMP in 1993 and 1996. As a result, roads and access were considered a signficant issue throughout the planning process. This issue had many facets as described in Chapter 2 of the EIS. There have been numerous public meetings and open IDT (interdisciplinary team) meetings where the JNF transportation system, its management, and concerns/opportunities for each 6th-level watershed were discussed. Notes of

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these meetings were made available on the internet. There was also the opportunity for the public to provide comments during the formal comment period for the DEIS and PRLRMP. People's views, desires, and concerns regarding the management of the Forest transportation system were considered in developing the direction found in the Final RLRMP.

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**566. The Forest Service should conduct a new roads analysis.**

**And then determine objectives**

**And apply open roads standards to temporary and gated roads**

**And identify roads or mileage to be decommissioned**

The forest-scale roads analysis was not intended to analyze the all roads (classified and unclassified) on National Forest lands. There are multiple scales at which roads analysis may be conducted to inform road management decisions. Roads analysis at the forest-scale provides the context for informing road management decisions and activities at the watershed, area and project level. The forest-scale roads analysis and the resulting report 1) display the classified roads and display how the roads are intended to be managed; 2) provide guidelines for addressing road management issues and priorities; 3) identify significant social and environmental issues, concerns and opportunities to be analyzed through lower level analyses; and 4) document coordination efforts with other government agencies (FSM 7712.13b.). The Responsible Official has the discretion and duty to determine whether or not a roads analysis below the forest-scale is needed and the degree of detail that is appropriate and practicable (FSM 7712.13).

Effects of temporary roads and road obliteration were incorporated into the analysis of soil productivity and watershed condition in Chapter 3 of the EIS.

**567. The Forest Service should develop criteria for when a watershed or project scale roads analysis will be needed.**

Priorities for conducting a watershed-scale road analysis are discussed in Chapter 2 of the RLRMP based on impaired rivers and streams and watersheds which possess outstanding aquatic biodiversity. Objectives 1.02, 1.03, and 31.01 in the Proposed RLRMP have been clarified and strengthened in the Final RLRMP as a result of public comment. Management Prescriptions in Chapter 3 of the RLRMP specify areas where watershed- or project-scale roads analyses must be completed prior to certain road construction, reconstruction, or decommissioning activities. In other situations and areas of the Forest, the Responsible Official has the discretion and duty to determine whether or not a roads analysis below the forest-scale is needed and the degree of detail that is appropriate and practicable. Guidance on selecting the appropriate scale and those proposed actions which may trigger a need for a roads analysis is set forth in FSM 7712.13, paragraphs a-c." (FSM 7712.13) Additional guidance is provided in the report Roads Analysis: Informing Decisions About Managing the National Forest Transportation System (USDA Forest Service, 1999, Misc. Report FS-643).

**568. The Forest Service should demonstrate which roads are necessary to implement the forest plan.**

**569. The Forest Service should better identify Forest System Roads.**

**570. The Forest Service should HERE identify a minimum road system option as required by FSM 7712.11.**

36 CFR 212.5 requires the Forest Service to identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands, using a science-based roads analysis at the appropriate scale. The forest-scale roads analysis was not intended to analyze the all roads (classified and unclassified) on National Forest lands. There are multiple scales at which roads analysis may be conducted to inform road

management decisions. The effects analysis at the programmatic Forest Plan level is useful in comparing and evaluating alternatives on a Forestwide basis, but is not intended to provide sufficient detail to be applied to specific locations on the Forest. Outcomes of roads analysis at the watershed and area-scale would identify needed and unneeded roads (FSM 7712.13c). It is at these levels of analysis where individual roads in the project area will be identified and effects of implementing a project alternative will be analyzed and disclosed.

**571. The Forest Service should explain the interrelationship between the roads and watershed analyses.**

There is no doubt that poorly managed roads will have a significant effect on water quality within a watershed. Therefore, consideration of roads is a necessary component of a watershed scale analysis. During the preparation of the RLRMP and EIS, a series of IDT meetings open to the public were convened to look at variety of issues on a watershed-by-watershed basis. Several individual citizens and representatives of citizen organizations as well as State agencies with water-related responsibilities attended these meetings. Principle influences, sources of impairment, and other items important to evaluating watershed condition were identified and discussed. Public and private road density, major travelways, existing access, problem roads, future transportation needs and opportunities were identified. Considering these roads analysis issues on a watershed basis (but at a forest scale) allowed us to focus our discussions and enabled citizens to attend those meetings they were most interested in. On-going roads analysis at both the watershed and local scale will continue to very closely linked with watershed analysis because the roads, access, and water-related issues are closely linked.

**572. The Forest Service should include only realistic projections of environmental effects in the roads analysis based on likely natural processes and management activities.**

The RLRMP identifies the desired conditions to be achieved, and the EIS explains the projected outputs and activities needed to meet those desired conditions, along with the environmental effects of those projected outputs and activities. We believe that the EIS is based on reasonable projections that reflect natural processes that are likely and management activities that we anticipate. Since these processes and activities have not yet occurred, it is difficult to determine what they will be, however, it is the job of the interdisciplinary team to estimate these projections. Roads are an important component of the activities needed to meet desired conditions and the estimated level of road construction necessary to implement the RLRMP by alternative are shown in Chapter 3 of the EIS, Social/Economic Environment, Road System Management. The effects of roads on other Forest resources are shown in other sections of the EIS Chapter 3. For example, effects on long-term soil productivity are discussed in Physical Environment, Soils. See also Response #565.

## Road Construction, Reconstruction, and Maintenance

**573. The Forest Service should not construct additional roads.**

**Because doing so would fragment ecosystems**

**not construct additional roads To support the timber industry**

**Or reconstruct roads.**

Existing laws and policies of the Forest Service state “in planning for and analyzing the transportation system, perform the following: (1) assess economic costs and benefits along with social, physical, and biological factors when identifying transportation facility options; (2) assess effects of transportation facility options on ecological processes and ecosystem health, diversity, and productivity; (3) consider the needs of all parties when developing transportation system opportunities in

areas of intermingled ownership; and (4) consider long- and short-term uses, including possible mechanized, non-mechanized, and off-highway vehicle uses, when analyzing transportation facilities…" As a matter of policy, new road construction is considered on a project-by-project basis. Consideration of road construction must take into account possible or probable effects on the various resource areas.

A Forest Plan is a strategic document that makes only the broad decisions defined in the National Forest Management Act. Activities like road construction, reconstruction, decommissioning, and road standards are appropriately based upon site-specific information and analysis, typically at a much smaller scale than the entire national forest. An interdisciplinary science-based roads analysis at the appropriate scale will be used to inform planners and decision makers of needed and unneeded roads and to recommend priorities for implementation.

Although there are three primary options for funding road building for Forest System Roads, generally timber contractors are responsible for the cost of road construction as a primary component of the timber sale contract. Therefore, funding for the vast majority of timber-related roads comes from the proceeds of the timber contract and is not supplemented in any way unless the road is to be built to a higher standard than required for timber harvest for subsequent use after the harvest for other purposes. In this instance, the timber harvest contractor would, understandably, not be responsible for road costs to build the road to the higher standard. For this situation, the road cost would be pro rated based on the cost to construct to the standard required for the timber harvest (which the timber contractor would be responsible for) and the cost to build the road to a higher standard (which other funds would pay for). It is a requirement of commercial timber sales that they be economically viable, and road construction is a primary cost component of this analysis.

**574. The Forest Service should clarify whether or not temporary roads are included in construction estimates.**

Temporary road costs are part of the costs used to determine the "stumpage value" of the timber, which is a "net" figure. So while there are no explicit temporary road costs in the analysis, they are accounted for through the reduction in the "net revenue" (or stumpage value) figure used in the economic analysis. Estimates of temporary road mileage was included in the soils and watershed condition effects analysis in Chapter 3 of the EIS.

**575. The Forest Service should only construct new roads if no other feasible alternative exists to deal with emergency situations.**

A Forest Plan is a strategic document that makes only the broad decisions defined in the National Forest Management Act. Activities like road construction, reconstruction, decommissioning, and road standards are appropriately based upon site-specific information and analysis, typically at a much smaller scale than the entire national forest. An interdisciplinary science-based roads analysis at the appropriate scale will be used to inform planners and decision makers of needed and unneeded roads and to recommend priorities for implementation.

**576. The Forest Service should only consider new roads if they help in maintaining and protecting sensitive areas.**

The RLRMP identifies the desired conditions to be achieved, and the EIS explains the projected outputs and activities needed to meet those desired conditions, along with the environmental effects of those projected outputs and activities. Roads are an important component of the activities needed to meet desired conditions and the estimated level of road construction necessary to implement the RLRMP by alternative are shown in Chapter 3 of the EIS, Social/Economic Environment, Road System Management. The effects of roads on other Forest resources are shown in

other sections of the EIS Chapter 3. For example, effects on long-term soil productivity are discussed in Physical Environment, Soils.

**577. The Forest Service should consider the costs of road construction for creating the desired conditions outlined in the proposed plan.**

The RLRMP identifies the desired conditions to be achieved, and the EIS explains the projected outputs and activities needed to meet those desired conditions, along with the environmental effects of those projected outputs and activities. The commenter is correct that we may not receive the full budget needed to carry out all the activities projected in the RLRMP and EIS.

**578. The Forest Service should build roads to the lowest minimum standard that also protects resources and minimizes maintenance costs over the long term.**

This is Forest Service policy. FSM 7700 states that it is the policy of the Forest Service to "Determine and provide for the minimum forest transportation system that best serves current and anticipated management objectives and public uses of National Forest System (NFS) lands….." Necessarily, this policy is applied to individual projects as well as application to the entire Forest transportation system. CFR 212.4 states "Construction and maintenance work on forest transportation facilities with appropriated funds shall be directed to what is necessary and economically justified for protection, administration, development, and multiple-use management of the federally owned lands and resources served."

## Road Density

**579. The Forest Service should develop and enforce road density standards.**

A number of commenters requested we make changes to our forestwide roads analysis, open road density standards and objective for decommissioning roads in the PRLRMP. They correctly noted that in some cases our road density standards in the 1985 Forest Plan were more restrictive than those proposed in the RLRMP. The fragmented ownership pattern of the JNF means Forest Service System roads are an integral part of the rural transportation system and, conversely, State roads are an integral part of the Forest transportation system. Due to this fact, we were never able to meet the road density standards in the 1985 Forest Plan. As a result of comments, however, we did revisit the roads analysis and the management direction related to roads for the Final RLRMP. We strengthened the objective for road decommissioning and we revised many of our open road density standards.

**580. The Forest Service should explain how the road density level is sufficient to protect disturbance-sensitive species.**

Effects pertinent to disturbance sensitive species can be found in the EIS Chapter 3, Biological Environment, Terrestrial Species and Their Habitat. See sections on Successional Forests; Old Growth; Interior Habitats; Threatened, Endangered, Sensitive, and Locally Rare Species; and Terrestrial Viability Analysis.

**581. The Forest Service should define "regular basis" as roads that are open to motorized traffic for six months or longer per year.**

A definition has been added to the Final RLRMP.

**582. The Forest Service should consider "open" any road that receives any use throughout the year.**

A definition has been added to the Final RLRMP.

## Road Decommissioning

**583. The Forest Service should develop and implement explicit standards to close and rehabilitate a significant mileage of forest roads.**

**584. The Forest Service should develop goals and objectives for reducing road mileage to fiscally responsible levels.**

**585. The Forest Service should close down forest roads.**

**586. The Forest Service should obliterate more roads and restore the land.**

**587. The Forest Service should decommission FS Road 6261 beyond the point where public access is prohibited.**

**588. The Forest Service should decommission Level 1 and Level 2 roads.**

**589. The Forest Service should develop objectives or standards for decommissioning roads.**

**590. The Forest Service should add direction to many management prescriptions for deconstructing roads.**

A number of commenters requested we make changes to our forestwide objective for decommissioning roads in the PRLRMP. Standards are in place for decision-making concerning decommissioning of roads. Standards for road decommissioning are included in appropriate management prescriptions. This is a part of the Roads Analysis process and will also be a major component of each planned watershed scale analysis. The RLRMP emphasizes decommissioning of roads which are identified as not needed, causing unacceptably resource damage, or in an area where management has changed and road densities exceed prescriptions. As a result of comments, however, we did revisit the roads analysis and the management direction related to roads for the Final RLRMP. We strengthened the objective for road decommissioning and we revised many of our open road density standards.

**591. The Forest Service should not reopen closed or obliterated roads.**

Decommissioned roads are those roads that are no longer needed for use and are taken off the transportation system. It is Forest Service policy (FSM 7703) not to reopen a decommissioned road. Roads may be closed and remain on the transportation system when they are needed for administrative use or for future management. These roads are not considered to be decommissioned and may be reopened.

### FACILITIES (GENERAL)

**592. The Forest Service should contact the Department of Environmental Quality for determination of state permit requirements.**

Our Forest engineering team is in constant contact and frequently corresponds with the DEQ on numerous and diverse issues. Prior to any project's initiation, the engineering team determines what permits will be required, and confers with the appropriate DEQ contact on this matter.

## RECREATION

### RECREATION MANAGEMENT (GENERAL)

**593. The Forest Service should ensure that the forest plan is consistent with Virginia's Department of Conservation and Recreation management of the New River Trail State Park.**

We believe the direction, desired condition, and standards for prescription areas adjacent to the New River Trail State Park are consistent with Virginia DCR's objectives for management of the park.

**594. The Forest Service should recognize the importance of public land recreation.**

**And emphasize these uses above money making interests**

**As private lands are closed off**

**Particularly as demand increases for recreational opportunities**

We agree recreation is an important use of the Jefferson National Forest. This has

been acknowledged through identification of recreation as a significant issue (Chapter 2, Issue 7, EIS). Increasing public demand and our relationship with private land recreation opportunities are discussed in the Background Section for Recreation in Chapter 2 of the RLRMP. Chapter 3 of the EIS discloses the effects of the alternatives on recreation. Seven different alternatives were developed to respond to the wide variety of values expressed by citizens. Different alternatives emphasize different values expressed by citizens throughout the planning process. These many and often conflicting values were considered by the Regional Forester when making the final decision on what alternative will become the Revised Forest Plan.

**595. The Forest Service should include additional elements in monitoring trends measuring user satisfaction.**

Results and trend in user satisfaction are adequately described in Appendix G, Task #35 of the PRLRMP.

## Recreation Supply and Demand

**596. The Forest Service should obtain better data on recreation use on National Forest System lands.**

As stated in Chapter 3 page 3-230 through 3-231 of the DEIS, the forest relied upon the 2001 National Visitor Use Monitoring protocol, the 2001 J*efferson National Forest Recreation Realignment Report* (Overdevest and Cordell) and the 1999 publication, Outdoor *Recreation in American Life, A National Assessment of Demand and Supply Trends,* (Cordell) and the recreation use and supply and demand estimates.

**597. The Forest Service should better address the needs and desires of fishermen, hunters, and campers in the PRLMP.**

Thank you for your comment. The PRLRMP provides a mix of recreation opportunities. Within the mix, fishing, hunting and/or camping which are identified in the Emphasis or Desired Condition sections of the several of the Management Prescriptions including 7E1, 7E2, 8A1, 8B, and 12B to name a few.

**598. The Forest Service should reconcile the differences in analyzing the supply of and demand for recreation on National Forest System lands.**

Recreation supply and demand are addressed adequately in Chapter 3 of the EIS.

**599. The Forest Service should better analyze the real price of recreational opportunities on National Forest System lands.**

**600. The Forest Service should better document the need for recreation on National Forest System lands.**

Many comments were received throughout the planning process concerning the 1997 guidance from the Region on methodologies for calculating recreational supply and demand for wilderness. This included a calculation of the "practical maximum capacity" of roadless and wilderness areas. The Region recognized the concerns with this methodology and issued a letter on March 8, 2002 which emphasized that these calculations are "theoretical" and that the "rationale for the wilderness recommendations should be based on the merits of each roadless area and the sustainability of wilderness values".

## Recreation Types/Opportunities

### RECREATION - DEVELOPED

**601. The Forest Service should modify Management Prescription 7D to require the curtailment or**

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**elimination of recreational use if the activities allowed could potentially take threatened or endangered species.**
Forestwide standards are provided in Chapter 2 of the RLRMP to protect and recover T/E/S species. This forestwide direction pertains to all management prescriptions.

RECREATION

## RECREATION - DISPERSED

**602. The Forest Service should modify Management Prescription 7E2 to provide 8 to 10% of the forest in early successional forest.**
The levels of early successional habitat specified by management prescription are based on a number of factors, including silvicultural characteristics of JNF forest communities, aesthetic concerns, public issues, and existing law, regulation, and policy. See also Response #296.

**603. The Forest Service should modify various management prescriptions on the Jefferson National Forest.**
Thank you for your comments. Your suggestions have been considered and changes have been made as appropriate.

**604. The Forest Service should change the Management Prescription of Poverty Hollow from 7E2, Dispersed Recreation with Vegetation Management, to 7E1, Dispersed Recreation Area.**
The Desired Condition for Prescription Area for 7E2 provides for timber harvest to maintain a healthy and vigorous forest with sensitivity to dispersed recreation and scenic values. We believe careful harvest could be a useful tool in this prescription area for example to enhance vistas and/or improve wildlife viewing opportunities. See also Response #605.

**605. The Forest Service should change the Management Prescription of several areas to 7E1, Dispersed Recreation.**
Management prescriptions are allocated to different areas in order to achieve management objectives for multiple uses and resources. This comment implies that we must choose between management for recreation and commercial timber harvest. These two objectives are not mutually exclusive and can often complement one another. Timber management on the JNF over the past 40 years has helped improve access and habitat for hunting and laid the foundation for many hiking, biking, horseback riding, and off-highway vehicle trails. The levels of timber harvest and standards of harvest operations have maintained the high quality of the visual resource on the Forest that is important to recreation and tourism. Recreation use on the Forest has continued to increase. Where Dispersed Recreation emphasis areas have been assigned a management prescription that is suitable for timber management, timber management is compatible with the recreation management objectives of these areas.

**606. The Forest Service should change all 7.E.2 management prescriptions within recreation areas to 7.E.1, or provide a more protective designation.**
**Because users do not want to recreate where timber has been harvested or 'vegetatively disturbed'**

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. Different combinations of management prescriptions are used in different alternatives. Alternative G uses only management prescription 7E1, not 7E2. Alternative C, which was eliminated from detailed study, did not use timber harvesting in any management prescription. Timber harvesting is prescribed as a tool in management prescription 7E2 for a variety of reasons including: to provide hunting opportunities, create aesthetically desired stand structure and species composition, maintain, enhance, or restore the diveristy and complexity of native vegetation, reduce insect and disease hazards,

reduce fuel buildups, and provide for public health and safety.

## RECREATION - BACKCOUNTRY

**607. The Forest Service should change the Management Prescription on Potts Mountain from 12B, Remote Backcountry – Non-motorized, to 12A, Remote Backcountry – Few Open Roads.**
Thank you for your comment. We feel adequate opportunities for management of permanent wildlife openings in the Potts Creek Watershed are available in adjacent and nearby management prescriptions under the PRLRMP. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**608. The Forest Service should reduce the emphasis on backcountry recreation.**
Thank you for your comment. The PRLRMP provides a mix of recreation opportunities. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**609. The Forest Service should develop a backcountry management prescription that does not focus on recreation.**
Thank you for your comment. The Remote Highlands prescription you present is similar in many ways to Management Prescription 12C, Natural Processes in Backcountry Remote Areas.

**610. The Forest Service should allocate the Management Prescription 12C, Natural Processes in Remote Areas, to several areas.**
**Including the upper Dismal Creek watershed**

Thank you for your comments. In some cases, a 12A or 12B prescription was selected over 12C to allow slightly more flexibility for needed administrative access, insect and disease control or prescribed burning. The mix of management prescriptions under the PRLRMP provides protection for the AT and watershed values within the Dismal Creek watershed.

**611. The Forest Service should change the Management Prescription of Beartown Wilderness from 12C, Natural Processes in Remote Areas, to 1B, Recommended Wilderness Study Area.**
This area was kept as 12C due primarily to the current high percentage of the area underlain by privately owned minerals.

## RECREATION - TRAILS

**612. The Forest Service should support hiking activities on National Forest System lands.**
We agree. Thank you for your comment.

**613. The Forest Service should increase nonmotorized trails.**
Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. The FEIS includes 7 Alternatives, each with different amounts of nonmotorized recreation. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options for levels of both motorized and nonmotorized recreation. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**614. The Forest Service should indicate whether the nature of the Devils Fork trail system is changing.**
No changes are planned for the Devil's Fork Trail System. The wording in the desired condition for Management Prescription 4F has been modified based on your suggestion.

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**615. The Forest Service should support the Pine Mountain Trail.**
Thank you for your comments. Including the North Fork of the Pound Special Area, about 40% of the Pine Mountain Area is in special, scenic, biological, or geological prescriptions. Motorized use of the Pine Mountain Trail is prohibited under FW-154 in the PRLRMP. Enforcement is a legal issue and outside the scope of a forest plan.

## APPALACHIAN NATIONAL SCENIC TRAIL

**616. The Forest Service should protect the Appalachian Trail.**
The Forest Service is charged by the National Trails System Act (P.L. 90-543, as amended) with the protection and management of the portions of the Appalachian National Scenic Trail which are located on National Forest lands and lands administratively transferred to the agency for management. Working with the other members of the cooperative management system for the Appalachian Trail, the agency has developed many tools to accomplish this protection and management, including the Appalachian Trail Comprehensive Plan, agency policy and directives, numerous memoranda of agreement, and the development of a unique management prescription for the Appalachian Trail in the Forest Plans. The agency has also striven to balance the need for consistency in the management of the Appalachian Trail as a long-distance trail within the Southern Region with the need to respond to unique, site-specific situations. The Appalachian Trail corridor was designated as a unique management area in the original Forest Plan, and that concept is continued as management prescription 4A in the Revised Forest Plan. The Forest Service is committed to the continued protection and management of the Appalachian National Scenic Trail.

**617. The Forest Service should limit the impact of the Appalachian Trail on surrounding land uses.**

**618. The Forest Service should reduce the size and influence of Management Prescription 4A, Appalachian Trail Corridor.**
Since 1977, the Southern Region of the Forest Service has defined the corridor area associated with the Appalachian National Scenic Trail as the foreground visual zone as defined by the current agency system for scenic resource management. This definition results in a management prescription area of varying width based on the actual seen area from the Appalachian Trail. Within this management prescription, management activities are designed to emphasize and complement the Appalachian Trail experience. This definition, and the management direction and standards which apply within the prescription area, is appropriate for a Congressionally-designated National Scenic Trail, and serves as an effective and quantifiable limit for the Appalachian Trail management prescription and adjacent management prescription areas.

**619. The Forest Service should remove the Appalachian Trail Management Prescription 4A.**
The Appalachian Trail was designated as the first National Scenic Trail by the National Trails System Act (NTSA). This formal designation separates the Appalachian Trail from most other Forest Service trails. The NTSA also requires the conservation of the Appalachian Trail and the areas through which it passes. Since 1977, working with Appalachian Trail management partners, the Southern Region of the Forest Service has defined the corridor area associated with the Appalachian Trail as the foreground visual zone as defined by the current agency system for scenic resource management. Where the traditional or current route of the trail is not the optimal permanent location, the optimal location has been determined through a cooperative process, and is the basis for the trail corridor. In the original Forest Plan, the Appalachian Trail corridor was designated as a unique management area with specific management direction, standards, and guidelines. In the Revised Forest Plan, the Appalachian Trail corridor is designated as a unique management prescription with specific management direction and standards. Effective management of the Appalachian National Scenic Trail as a long-distance

hiking trail relies on the direction found in management prescription 4A. Changing the definition of the Appalachian Trail corridor is outside the scope of the Revised Forest Plan.

**620. The Forest Service should realize that management of the Appalachian Trail violates the National Trails System Act of 1968.**

**621. The Forest Service should realize that management of the Appalachian Trail violates the Federal Advisory Committee Act.**

**622. The Forest Service should have better involved the public in the planning of Appalachian trail issues**

Appendix A provides a summary of the extraordinary public involvement during the planning process from 1993 through the DEIS and PRLRMP. The Appalachian Trail was designated as the first National Scenic Trail by the National Trails System Act (NTSA). The act directs the Forest Service and the National Park Service to work cooperatively with volunteers and volunteer organizations to plan, develop, and manage nationally designated trails. Management of the AT is conducted using the cooperative management system detailed in the Appalachian Trail Comprehensive Plan, developed by both federal agencies as directed by the NTSA. This management is a full partnership between the Forest Service, the National Park Service, other federal and state land-managing agencies, the Appalachian Trail Conference (ATC), and the members of ATC-affiliated trail clubs. The NTSA, the Appalachian Trail Comprehensive Plan, and existing agreements between the trail-management partners recognize the need to manage both the actual trail treadway and the lands around the treadway to protect trail values and resources, and provide for the enjoyment of trail users. The management of the Appalachian Trail using the cooperative management system does not violate the Federal Advisory Committee Act (FACA) or the National Trails System Act. Public participation is provided for by the scoping process of the National Environmental Policy Act (NEPA) for specific trail-related projects, and by the public comment process of the Revised Forest Plan.

**623. The Forest Service should recognize that Alternative A would increase the potential for conflicts among user groups near the Appalachian Trail**

The Appalachian National Scenic Trail under all alternatives is protected within management prescription 4A. This prescription area is defined as the foreground as viewed from the Trail and may be up to 1/2 mile wide on either side of the trail (1 mile total). Management prescription 4A is unsuitable for timber production under all alternatives. 28 standards for protecting the Appalachian Trail are provided on pages 3-19 through 3-22 of the PRLRMP. This management prescription has been modified in the Final RLRMP by adding a few standards and strengthening other standards.

**624. The Forest Service should protect the Appalachian Trail in several areas on the Jefferson National Forest.**

Thank you for your suggestions, they were helpful in reviewing our draft documents. We have reviewed and considered these and made appropriate changes. The Regional Forester has identified in the Record of Decision which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**625. The Forest Service should assign various Management Prescriptions to various areas on the Appalachian Trail.**

Thank you for expressing your views on this Alternative. All views were carefully considered during development and evaluation of the existing Alternatives. The Regional Forester has identified in the Record of Decision which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

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**626. The Forest Service should ensure that the Appalachian Trail prescription area is properly depicted.**

We have reviewed the location of the Appalachian National Scenic Trail Corridor Management Prescription and foreground as currently mapped. We have made appropriate changes both to the map for Alternative I and in the various management prescription desired conditions and standards where necessary. Every effort has been made to develop the best possible maps for the Forest Plan revision. Maps can never be completely accurate, and are revised as conditions change, including land acquisition and trail relocations. The boundary of the 4A management prescription is the foreground zone as defined by the Scenery Management System and mapped from the Appalachian Trail treadway. Field verifications and corrections are expected to occur in response to specific project proposals throughout the life of the RLRMP.

**627. The Forest Service should ensure that the Appalachian Trail prescription area is properly depicted**

**Including the Route 606 area**

This change has been made.

**628. The Forest Service should maintain a goal of "no-net-loss" in the Appalachian Trail management prescription.**

Inclusion of a standard or standards requiring "no net loss" of Appalachian Trail values was discussed extensively during development of the revised Forest Plans. The inability to objectively define the terms and quantify "loss of values" and "no net loss" resulted in the decision not to include it as a standard. Overall protection of Appalachian Trail values and resources is provided for by existing agency regulations and policy; and by the emphasis narrative, desired condition narrative, and standards for management prescription 4A in the Revised Forest Plan.

**629. The Forest Service should include language regarding management of the Appalachian Trail in certain other prescriptions.**

This comment identifies several specific areas on the RLRMP maps where the Appalachian Trail management prescription area (4A) is imbedded within another management prescription. In these cases, where prescription area 4A is not delineated on the map, a standard linking to prescription area 4A is included in the management direction to ensure that any proposed activities are compatible with both management prescription areas. Some changes to the land allocation were also made between the Proposed and Final RLRMP in order to more accurately reflect the AT corridor.

**630. The Forest Service should clarify that ATVs are not permitted on the Appalachian Trail and its corridor.**

An additional standard has been added to 4A in response to this comment.

**631. The Forest Service should change Standard 4A-024 to only allow recreational special uses that do not adversely affect Appalachian Trail values.**

This standard has been revised as a result of your comment.

**632. The Forest Service should modify various Appalachian Trail related standards and objectives.**

Thank you for your comments. Trail standards and objectives have been reviewed and revisions made where appropriate. Many have been addressed in other Appalachian Trail comment responses.

**633. The Forest Service should modify the language addressing lands and special uses for the Appalachian Trail.**

Thank you for your comments. This language has been reviewed and revisions made where appropriate.

**634. The Forest Service should not allow timber hauling or skidding in management prescription**

**area 4A.**
Some limited vegetation management is allowed within the Appalachian Trail corridor in order to enhance the Trail environment (4A-004, PRLRMP). Timber harvesting is one tool which may be employed to accomplish this vegetation management, therefore timber hauling or skidding within the corridor itself may be necessary.

## EQUESTRIAN TRAILS

**635. The Forest Service should not limit equestrian use to only designated trails.**
**Because this will crowd equestrian usage onto a small number of trails**

**Because equestrian activities do not adversely impact water quality**

**But should only limit use in areas that have been damaged or are in need of protection**

**Because many people enjoy horseback riding on National Forest System lands**

**Because these regulations will have no impact on water quality**

**Because this policy discriminates againist the disabled**

**Because equestrian use can be compatible with other trail user groups**

**636. The Forest Service should better clarify the need for Standard FW-104.**
The PRLRMP did not contain a forest-wide standard to limit horse trails to designated roads and trails. We have however, included the following standard in the Mount Rogers National Recreation Area and the Pine Mountain area on the Clinch Ranger District: "Allow bicycles, horses, and pack stock only on open and closed roads (unless otherwise posted) and designated trails. Horses and pack stock are allowed immediately adjacent to these trails and roads for the purpose of camping, resting, picnicking, watering, etc. (within a corridor of 300 feet on either side of these designated routes)." The intent of this standard is not to reduce the numbers of horse trails or equestrian access. To the contrary, we have a Forest Objective (19.02 on page 2-36 of the PRLRMP) to increase hiking, biking, and equestrian trail systems, especially in non-motorized settings with high quality landscapes. What this new standard is primarily designed to address is riders going cross country in sensitive areas and areas which receive very heavy horseback riding use. For example, in the open meadows of the Mount Rogers High Country we have a lot of sensitive soils and plants and use in this area continues to grow and grow. The remainder of the Mount Rogers NRA gets a tremendous amount of horse use because this area of the Forest has the most horse trails as well as campgrounds and trailheads designed with equestrian use in mind. Likewise, the Pine Mountain area on the Clinch Ranger District receives heavy use and has many sensitive areas. The rule is NOT meant to close down existing horse trails. The horse trails that are currently open to horses, like the Iron Mountain Trail and Virginia Highlands Horse Trail, will continue to be open and indeed opportunities to increase the numbers of horse trails will be sought.

**637. The Forest Service should consider research that shows trail horses near water are not responsible for contamination.**
Good information. However, we are unclear on the commenter's reference in the Draft Plan. Relocation of trails and facilities out of riparian areas and improved trail and stream crossing design as prescribed in various forestwide standards as well as in Prescription Area 11, Riparian Corridors should, in any case, reduce the risks of water contamination from all recreationists including equestrian users.

**638. The Forest Service should consider the impact of equestrian use in the Mount Rogers Matrix Block.**
Forestwide and Riparian Corridor recreation standards are designed to control

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impacts from the expected increase in equestrian use which is anticipated in the Mount Rogers area as well as forestwide. Refer to Management Prescription 11, Riparian Corridor standards 11-034-036 which address locations and restrictions on new and existing equestrian facilities in these areas.

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**639. The Forest Service should monitor horse use in Management Area 6E, Iron Mountain.**
Thank you for your comment. The Iron Mountain Trail is a very important multi-use trail on the Mount Rogers NRA which receives significant horse use. It will continue to be monitored and maintained.

## MOUNTAIN BIKING TRAILS

**640. The Forest Service should not limit bicycle use to designated bicycle trails.**
**Because the recreational and health benefits of mountain biking far outweigh the minimal impact on the land**

The PRLRMP did not contain a forest-wide standard to limit bike trails to designated roads and trails. We have however, included the following standard in the Mount Rogers National Recreation Area and the Pine Mountain area on the Clinch Ranger District: "Allow bicycles, horses, and pack stock only on open and closed roads (unless otherwise posted) and designated trails. Horses and pack stock are allowed immediately adjacent to these trails and roads for the purpose of camping, resting, picnicking, watering, etc. (within a corridor of 300 feet on either side of these designated routes)." The intent of this standard is not to reduce the numbers of bike trails or bicycle access. To the contrary, we have a Forest Objective (19.02 on page 2-36 of the PRLRMP) to increase hiking, biking, and equestrian trail systems, especially in non-motorized settings with high quality landscapes. What this new standard is primarily designed to address is riders going cross country in sensitive areas and areas which receive very heavy mountain bike use. The rule is NOT meant to close down existing bike trails. The trails that are currently open to bicycles, like the Iron Mountain Trail and Virginia Creeper Trail, will continue to be open and indeed opportunities to increase the numbers of bike trails will be sought.

**641. The Forest Service should continue to support mountain biking activities on National Forest System lands.**
**Because local mountain bikers spend many hours per year on trial maintenance, user education, and mountain bike patrols**

**Including the trails on the New River Valley Ranger District**

**For our continued well-being**

Trails and other dispersed recreation activities are a large part of the overall recreation program for the Jefferson National Forest. Overall, building additional trails would be compatible with the forest plans as revised. However, forest plans do not prescribe how much additional trail will be built. Adding trails to the forest will be an individual project decision based on need, type of trail, desired location and funding. Generally non-motorized trails are compatible with most prescription areas on the forest, the one exception would be bicycles in wilderness areas or recommended wilderness areas. Some prescriptions will be managed to meet a higher standard for scenic beauty which would provide some of the higher quality areas for trails, but most all prescriptions would allow for new trail development. Mountain bicycling opportunities will be maintained in the Crawfish Valley area of the New River Valley RD under the PRLRMP.

**642. The Forest Service should support mountain biking in various areas of the forest.**
Mountain bicycling opportunities will be maintained in the areas mentioned under the PRLRMP.

## RECREATION - MOTORIZED

**643. The Forest Service should allow ATV use on National Forest System lands.**
**Because this use is an important activity on public lands**

**Because this activity provides economic benefits**

**But should limit the impact of ATV activity**

Off-highway vehicle ("OHV") recreation is clearly a valid use of, as well as a frequently enjoyed activity, on National Forest Lands. See Executive Order 11644, as amended by Executive Order 11989, Use of Of-Road Vehicles on Public Lands, 37 FR 2877 (Feb. 9, 1972), 42 FR 26959 (May 25, 1977.) As overall strategic direction for forest lands, the RLRMP balances recreational use and protection of resources. It emphasizes OHV recreation in certain areas. It also recognizes that OHV recreation is inappropriate for certain settings due to impacts on ecological resources or conflicts with other recreationists or designated land uses.

Screening Criteria for New OHV Systems in Appendix J was used as part of the process identifying lands for 7.C., OHV Use Area, prescription. These criteria help evaluate the potential environmental and social conflicts. During RLRMP implementation, these screening criteria will be used to guide the development of OHV opportunities in compatible prescriptions. For example, the potential impact of noise associated will be examined and, if necessary, mitigation measures will be designed to reduce negative effects to an acceptable level.

**644. The Forest Service should not open up more National Forest System lands to ATV use.**
**Because ATVs help spread invasive species (J)**

**To protect rivers and streams**

**Around the Appalachian Trail**

**Including on the Jefferson National Forest**

**Because ATVs help spread invasive species**

**645. The Forest Service should prohibit ATV use on National Forest System lands.**
**In Wild and Scenic River corridors**

**Including Management Area 6E, Iron Mountain**

**646. The Forest Service should prohibit ATV use on the North Fork area of the Clinch Ranger District.**

**647. The Forest Service should modify various standards related to OHV / ATV use.**
The RLRMP provides an umbrella of direction for future site-specific developments by designating where OHV recreation may be compatible with other uses; it however does not make site-specific project decisions. Any future proposals for development of OHV routes – whether new systems or additions to existing systems - will require further site-specific project analysis which will take into account potential site-specific impacts such as noise, disturbance to wildlife, erosion, invasive species and conflicts with other uses. These future project proposals will solicit public comment on site-specific considerations such as location, length, use of roads, safety, vehicle types, trailheads, operational periods, and site-specific monitoring.

Rivers and streams are protected under standard 7C-001 in the PRLRMP. A large number of comments were concerned with proper trail design, trail maintenance, presence of law enforcement, illegal riding off designated OHV routes and damage to the land by illegal riding. We agree that proper program management is important to the success of OHV recreation. Partnerships with motorized recreationists, communities, forest interest groups, other law enforcement agencies and public land manager are also essential in providing information on where and

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how to ride. The Agency is committed to offering high quality OHV riding opportunities in a natural setting and is committed to the stewardship of Forest Service lands. Plan-level decisions on OHV recreation are reviewed in the annual forest plan monitoring report. Additionally, current regulations give the authority to land managers to close areas that are being adversely impacted. See 36 CFR 295, Use of Motor Vehicles Off Roads, and 36 CFR 261, Prohibitions. Rivers and streams are protected under standard 7C-001 in the PRLRMP.

Prescription areas immediately adjacent to Prescription Area 4A are unsuitable for new OHV routes or ATV areas unless crossing the area is the only feasible alternative or results in less environmental impact.

Recreation Goal 20, Objective 20.04 in the PRLRMP, is to evaluate two new ATV areas. These would be project level analyses done using the screening criteria in Appendix J and in accordance with NEPA.

There are no existing identified OHV routes within Prescription 2C3, Eligible Recreational River. Any potential new OHV route designation in Prescription Area 2C3, would have to be on an existing open system road and undergo project level analysis under NEPA. The prescription area is unsuitable for ATV areas.

Prescription area 4K6, North Fork of the Pound Special Area includes a standard under which the area is unsuitable for new OHV routes or ATV systems.

There are many vectors for invasive species including boots, bait buckets, vehicles, animals, wind, and water. ATV's are one more potential source of invasive species introduction. We have supplemented the discussion of invasive species in the DEIS.

Illegal ATV use on the Jefferson is an important issue but it is a legal issue considered to be outside the scope of the Forest Plan.

**648. The Forest Service should explain how off-road vehicle use will be "restricted."**

OHV use is restricted to designated routes, either system roads or trails. A restriction such as a seasonal or temporary route closure may also be employed to protect specific resources or values.

**649. The Forest Service should recognize the incompatibility of the ATV route along the perimeter of the Barbours Creek Wilderness Area.**

The Potts Mountain Jeep road adjacent to Barbour's Creek Wilderness is a high clearance road identified in Prescription 7C of the PRLRMP as a Licensed Off Road Vehicle Route. It has been informally identified as such for many years. It is not open to unlicensed ATV's or motorcycles. Clear and adequate signing and coordination with local OHV groups should continue to prevent illegal motorized incursion into the nearby Wilderness.

**650. The Forest Service should consider a number of factors when determining the appropriateness of the OHV and ATV routes.**

This is a thorough comment with good suggestions for consideration in analyzing new OHV or ATV routes. Many of these considerations are included in the screening criteria in Appendix J of the PRLRMP. Several of the suggested factors such as those regarding law enforcement, health and safety, volunteer support, funding, trailhead capacity, trail widths, and effects on and from private lands would be considered in the site specific analysis done in accordance with NEPA.

**651. The Forest Service should construct an ATV trail in the Cumberland / Pine Mountain area.**

**652. The Forest Service should control illegal ATV use along the Pine Mountain Ridge and Trail.**

Proposed new ATV routes or systems could be considered but would need to satisfy the OHV screening criteria in Appendix J of the PRLRMP and undergo thorough site specific analysis under NEPA. The issue of illegal OHV use along Pine Mountain as well as on the forest in general is an important issue but is a legal one and, as such,

is considered outside the scope the forest plan.

**653. The Forest Service should modify the Jefferson National Forest's ATV screening criteria to match the criteria adopted by the George Washington National Forest.**

Appendix J, Screening Criteria for New OHV Areas, was modeled after a similar screening criteria developed during the GWNF forest planning process. The intent is to use the criteria to select potential ATV areas either during the planning process to make allocation decisions in the plan, as was done on the GW plan, or, alternatively, as part of subsequent project level analyses. On the Jefferson National Forest it will be used in association with project level planning. Some wording corrections have been made in the final Appendix J to clarify compatibility of OHV routes and areas.

**654. modify Management Prescription 7.C to provide 14 to 16% of the forest in early successional forest.**

The levels of early successional habitat specified by management prescription are based on a number of factors, including silvicultural characteristics of JNF forest communities, aesthetic concerns, public issues, and existing law, regulation, and policy. See also Response #296.

**655. The Forest Service should analyze the impact of developed recreational facilities.**

Thank you for your comment. The phrase "or exceeds" has been removed from the Prescription Area 7C Desired Condition in the RLRMP. Good route design and location has been shown to minimized illegal off-route use. There is never complete assurance that illegal use will not persist so, as stated, trail system closure is always an option.

**656. The Forest Service should only allow ATV use in Management Prescription 7.C.**

Through the 7C management prescription, the RLRMP identifies where the management will emphasize off highway vehicle ("OHV") recreation. In other prescriptions, OHV recreation may not be emphasized but may be compatible. For example, a single trail or smaller trail system may already exist, or be appropriate for development, in other prescriptions. Finally, it is important to provide logical trail systems including connections between trail systems, trail heads, or points of interest. The RLRMP states where motorized recreation is prohibited or permitted. Additionally, a few comments continued that the EIS failed to consider a range of alternatives for motorized recreation. However, the EIS did examine a range of OHV opportunities among the seven alternatives. Chapters 2 and 3 of the EIS discuss, by alternative, the acres allocated to the 7C prescription and the percent of estimated change in motorized trails.

**657. The Forest Service should not, in Standard 7C-002, allow OHV and ATV crossings in threatened and endangered species waters.**

A standard has been added to Management Prescription 11, Riparian Corridor in the RLRMP includes addressing any stream-connected disturbance, which will be designed and implemented after consideration of the life-cycle requirements of federally listed aquatic species. This would include motorized trail crossings.

**658. The Forest Service should bridge motorized trail crossings in the channeled ephemeral zone.**

The PRLRMP provides specific standards for motorized trail crossings to protect perennial and intermittent streams under Prescription 11 and for channeled ephemerals streams in the Forestwide Standards.

## SCENERY AND VISUAL RESOURCES MANAGEMENT (AESTHETICS)

**659. The Forest Service should explain how the visibility of landscapes was considered.**

The most recent scenery inventory and resultant scenic classes were used as a database for PRLRMP scenery management direction. This scenery inventory used the USDA Forest Service Agriculture Handbook 701 and other relevant portions of

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the USDA Forest Service Visual Management System documents as guides to update the field inventory and map data. Specific landscape visibility and scenic class mapping guidelines are addressed in Chapter 4 of Handbook 701. General landscape character descriptions for physiographic provinces on the JNF are documented on pages 3-278 to 279 of the DEIS. More detailed landscape descriptions and landscape attributes can be found in Amendment 2 R-8 FSH 3/77 Section 110.1 to the Landscape Management Handbook. An important component of the new Scenery Management System is the consideration of people's values for high quality scenery in backcountry and remote settings. It is important to note, however, that inventoried Scenic Class is based purely on Distance Zone, Concern Level, and Scenic Attractiveness (see Chapter 4 of Handbook 701), therefore, remote areas of the forest have a range of inventoried scenic classes. It is through the assignment of Scenic Integrity Objectives (SIOs) that people's values for scenery are weighed and balanced against the other issues considered in the forest planning process as evidenced in the SIOs for the backcountry management prescriptions 12A, 12B, and 12C ranging from High to Very High in all Scenic Classes (Chapter 3 RLRMP).

**660. The Forest Service should upgrade the Scenic Integrity Objectives for the Jefferson National Forest.**

Thank you for your comment. The table on page 3-281 of the DEIS was wrong and has been corrected. The management direction for scenery under all Alternatives is generally equal to or higher than that in the 1985 LRMP as indicated on page III-5 of the 1985 FEIS, Table III-4 (objectives in this inventory table were adopted as management direction).

**661. The Forest Service should modify several management prescriptions and standards related to Scenery and Visual Resources Management.**

The USDA Forest Service Agriculture Handbook 701, published in 1995, was used as a guideline to update the Jefferson NF scenery inventory and apply the resultant data along with other data to the forest plan revision. The SIO standards documented for each prescription area reflect what is economically reasonable, feasible and appropriate to sustain the desired scenery landscape character goal in concert with other resource goals and objectives for the area. It is important to note that inventoried Scenic Class does not incorporate people's values for backcountry areas; rather this is done through the assignment of Scenic Integrity Objectives as evidenced in the SIOs for the backcountry management prescriptions 12A, 12B, and 12C ranging from High to Very High in all Scenic Classes (Chapter 3 RLRMP).

**662. The Forest Service should delineate the visual impacts of a rehabilitation and enhancement Scenic Integrity Objective in area 4.J.**

Thank you for your comment. The wording for Standard 4J-012 and 4J-013 has been adjusted to more appropriately represent the management activities and achievable short term scenic integrity objective.

**663. The Forest Service should demonstrate how various management activities will not impair visual quality of the landscape.**

Scenery standards in the PRLRMP will help forest personnel reach the overall scenery management goals and objectives of protecting and enhancing the scenic and aesthetic values of the National Forest System lands as noted in the PRLRMP on page 2-43. Some management activities may appear as alterations to the desired landscape character. The adopted standards help forest managers decrease the potential negative impacts to an acceptable level to the casual observer and enhance the positive impacts.

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## ROADLESS AREAS

### Roadless Inventory - Criteria

**664. The Forest Service should use proper criteria and methods in conducting roadless area inventories.**

**665. The Forest Service should follow regional guidance regarding roadless inventories**

**666. The Forest Service should remove the regionally added restrictions on roadless inventory.**

There are three steps to determining what lands to recommend for wilderness designation. The first step is described in FSH 1909.12, Chapter 7.1, which states that, "The first step in the evaluation of potential wilderness is to identify and inventory all roadless, undeveloped areas that satisfy the definition of wilderness found in section 2(c) of the 1964 Wilderness Act." This involves using the criteria in FSH 1909.12, Chapter 7.1 to identify those "roadless" areas. The region also issued guidance in 1995 to provide some consistency on how to interpret that direction. Once the areas meeting the criteria are identified, the next step is to "evaluate" these areas to determine their "suitability" for wilderness recommendations. As is stated in FSH 1909.12, Chapter 7.2, "An area recommended as suitable for wilderness must meet the tests of capability, availability and need." The region also issued guidance in 1997 to provide some consistency on how to interpret the direction in FSH 1909.12, Chapter 7.2 on "evaluating" the roadless areas. This guidance was developed at the request of the Forests to define terms in the FSH 1909.12, Chapter 7 and Chapter 4.19c that were vague so that evaluations would be consistent in evaluating roadless areas. The last step is during the development of the forest plan alternatives where the effects of recommending or not recommending the roadless areas for wilderness designation are analyzed and documented in the environmental impact statement. The Forest has followed these three steps.

**667. The Forest Service should clarify the use of considerations of "solitude" as a definitive criterion in the delineation of potential wilderness areas**

**668. The Forest Service should not exceed the limits of "semi-primitive core" to eliminate qualified areas for roadless protection.**

According to the 1964 Wilderness Act, an area of wilderness is defined to have "at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition." According to FSH 1909.12, Chapter 7, while the 5,000 acre limit is a specific criterion (with some exceptions) for lands in the Western U.S., for the Eastern U.S. because of landownership patterns, the 5,000 acre limit is not applicable. Therefore, some guidance is needed on how to determine that an area "is of sufficient size as to make practicable its preservation and use in an unimpaired condition". In attempting to provide that guidance, the other provisions of the Wilderness Act definitions need to be considered, including the criterion that an area needs to have "outstanding opportunities for solitude or a primitive and unconfined type of recreation" (Section 2(c)). In attempting to identify these areas, the only non-subjective inventory of acres with these characteristics that is available, is from the Recreation Opportunity Spectrum (ROS). Within the ROS, areas classified as either "semi-primitive" or "primitive" would generally meet the Wilderness Act criterion of providing "opportunities for solitude or a primitive and unconfined type of recreation". Since there are few "primitive" areas in the Eastern U.S., we primarily looked for the "semi-primitive" areas which according to the ROS Handbook, need to contain at least 2,500 acres. However, we also recognized that this cannot be a hard and fast

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rule, and the regional guidance for inventorying roadless areas specifically states that – "it is important to recognize that this 2,500-acre semi-primitive 'core' size is not an absolute minimum. It is only a screen and as such should be used only as a guide."

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**669. The Forest Service should not use a standard of 2,500 core acres for protecting roadless values.**

One of the critical issues that were identified during the roadless inventory concerned the criterion from Forest Service Handbook 1909.12 (7.11b) requiring that a roadless area be "conducive to the perpetuation of wilderness values." The 1964 Wilderness Act defines a number of wilderness values. Among these values, Section 2 of the Act states that wildernesses must have "outstanding opportunities for solitude and a primitive and unconfined type of recreation." In an attempt to quantify this criterion, use of the Recreation Opportunity Spectrum (ROS) and the semi-primitive class of lands is recommended. As defined in the 1986 ROS Book, recreationists in areas inventoried as semi-primitive have a high to moderate "probability of experiencing isolation from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance...in an environment that offers challenge and risk." Based on this definition, semi-primitive lands were identified as the lands that best satisfied the solitude qualities of roadless areas. Therefore, it is desirable for the "core" of a roadless area to meet the conditions of a semi-primitive non-motorized or semi-primitive motorized ROS classification. (Generally, there are very few areas in the Southern U.S. that qualify under the "primitive" ROS classification.) Since the ROS Book states that semi-primitive areas contain at least 2,500 acres (unless they are contiguous to primitive class lands) this 2,500-acre minimum size can be used as a screen to evaluate areas identified and mapped by either the forest or the public. This 2,500-acre screen does not apply to additions to existing wildernesses. However, it is important to recognize that this 2,500-acre semi-primitive "core" size is not an absolute minimum. It is only a screen and as such is only used as a guide. Some areas above or below this size, may or may not provide solitude. For these areas, we looked closely at topography, proximity to type and use of roads, population centers and other sights and sounds of human activity to determine if solitude and primitive and unconfined recreation could be experienced. This was a professional judgment based on our knowledge of the area.

**670. The Forest Service should eliminate the "sights and sounds" criteria in determining areas suitable for the roadless inventory.**

We followed direction in FSH 1909.12 - Land And Resource Management Planning Handbook, WO Amendment 1909.12-92-1, Effective 8/3/92, Chapter 7 - Wilderness Evaluation, 7.2 - Evaluation Of Potential Wilderness, which gives direction on evaluation of potential wilderness. One of the items given to consider is the ability to manage the area as wilderness. This is described as the degree to which the area contains the basic characteristics that make it suitable for wilderness designation without regard to its availability for or need as wilderness. One of the principal wilderness characteristics given to consider is Manageability and to specifically evaluate how boundaries affect manageability of an area. Boundaries, to the extent practicable, act as a shield to protect the wilderness environment inside the boundary from the sights and sounds of civilization outside the wilderness. If the sights and sounds of civilization are determined to be important, they must be described. It is proper to not consider lands that do not meet the test for capability.

**671. The Forest Service should not follow regional guidance for the definition of "challenge" in wilderness areas**

**672. The Forest Service should not use Congressional use of "challenge" to create extreme sport wilderness areas.**

The guiding principles for describing "challenge" are from the Forest Service Handbook 1909.12, Chapter 7. The characteristic of "challenge" is one of the characteristics in determining the quality of the wilderness resource that is included in the analysis. The information in the regional guidance document the commenter is referencing was simply an example of what a write-up on "challenge" in a "generic" roadless area could possibly look like. The commenter has however, misinterpreted the "example write-up" as the actual guiding principles.

**673. The Forest Service should remove from consideration those areas which have not met the requirements for wilderness designation.**

Section 4 (d) of the 1975 Eastern Wilderness Act pertains to areas actually designated by Congress as wilderness study areas by law. It does not apply to areas administratively studied or recommended for wilderness by the Forest Service such as Rare II areas or inventoried roadless areas. Thus, there is no time limit on the administrative study or recommendation of areas for potential wilderness designation.

**674. The Forest Service should inventory qualified roadless areas.**

**Including the Dismal Creek watershed**

The Dismal Creek area did not qualify for the roadless inventory finalized in 1999. The mix of management prescriptions under the PRLRMP provides protection for ecological values within the Dismal Creek watershed.

## Roadless Protection/Management

**675. The Forest Service should consider that the PRLMP and accompanying DEIS violates provisions of NEPA because roadless areas are not adequately addressed**

We properly used the evaluation process for inventory and evaluation of roadless areas as directed in FSH 1909.12 - Land And Resource Management, Planning Handbook, WO Amendment 1909.12-92-1, Chapter 7 - Wilderness Evaluation. Appendix C of the EIS contains the Roadless Area Evaluations. Wilderness study area recommendations responded to the management emphasis of each alternative and are displayed in the EIS in Chapter 3, Social/Economic Environment, Recreation, Wilderness and Roadless Areas. The FEIS includes 7 Alternatives, each with different amounts of recommended wilderness study. The Record of Decision explains the rationale for wilderness study area recommendations in the Selected Alternative.

**676. The Forest Service should protect roadless and unroaded areas.**

**Because these areas are relatively pristine**

**Because roadless and unroaded areas are intrinsically valuable and irreplaceable**

**To protect fragmented populations of fish, amphibians, and other species**

**Because there is overlap with refugia for at-risk aquatic species**

**677. The Forest Service should protect roadless areas, wilderness, and old-growth forests.**

**And Watersheds**

Thank you for your comment. We feel the entire national forest has intrinsic value. Seven different alternatives were developed to respond to the wide variety of values expressed by citizens. These many often conflicting values were considered by the Regional Forester when making the final decision on what alternative will become the Revised Forest Plan. We agree that roadless areas are valuable in providing relatively large blocks of undisturbed habitat for terrestrial and aquatic wildlife species. See Appendix C, Evaluation of Roadless Areas. Wildlife and fish species and habitat status are discussed in each of the inventoried roadless areas. Aquatic species, including those at-risk, will be protected in all areas of the Forest through

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implementation of the Riparian Prescription and forest-wide channeled ephemeral standards. In addition, Prescription 9A4 was developed for several areas with TES aquatic species.

In the Record of Decision, the Regional Forester will discuss the rationale for selecting the appropriate mixture of uses, values, products and services in the alternative selected to serve as the Revised Plan. However, no single factor will lead to this selection.

**678. The Forest Service should preserve National Forest Lands.**
Because they are regional and national treasures

The EIS for the RLRMP addresses 20 significant issues that include the wide range of desires, wants, needs, and concerns that have been expressed by the JNF users. Often times, meeting one set of needs/concerns is in conflict with meeting other needs/concerns. The challenge is to try to find the appropriate level of management that will best address all these issues. The Record of Decision explains which alternative does the best job of maintaining and enhancing the special values the Jefferson has to offer for future generations. Scenery management was one of the issues addressed. Chapter 3, Social/Economic Environment, Scenery (beginning on page 3-277 of the DEIS) discusses the effect of the seven alternatives on the Forest scenery.

**679. The Forest Service should more adequately protect roadless areas.**
To defend against OHV damage

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. Other people value the JNF for its OHV opportunities and have requested more designated roads and trails. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**680. The Forest Service should have considered "roadless restoration areas" or similar prescriptions for roadless areas degraded by extractive development.**
Alternative C would come closest to meeting your request. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**681. The Forest Service should not preserve or improve on current roadless conditions without regard to existing or future forest development needs.**
Existing conditions and activities in inventoried roadless areas have been considered through the development of 7 alternative ways of managing inventoried roadless areas for the future. In the RLRMP, roadless character will be maintained in these areas through Forestwide and respective prescription area standards. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**682. The Forest Service should acknowledge that roadless areas may contain roads or other development.**
The criteria for inventory of roadless areas in the eastern U.S. are stated in Chapter 3 and Appendix C of the EIS. The fact that many of these areas have up to 1/2 mile of improved road has been acknowledged and stated many times throughout the planning process.

**683. The Forest Service should develop universal standards for all inventoried roadless areas on the Jefferson National Forest.**
Roadless areas are similar in meeting the basic roadless criteria. However, they are diverse in other important attributes such as vegetation, geology, wildlife habitat, land uses, and special features, size and manageability making it impractical to place them in a single management prescription with universal standards. However,

the PRLRMP on page 2-49 does contain standard FW-212 which stipulates No Surface Occupancy in semi-primitive areas (and all inventoried roadless areas are assigned an ROS classification of SPNM, SPM, or SP2 in the PRLRMP) which have not been withdrawn or administratively unavailable in specific management prescriptions.

**684. The Forest Service should protect all of the land that qualifies for wilderness.**

**685. The Forest Service should place all unroaded areas into protective management.**
**Because of their ecological and social significance**

There is no requirement to place all unroaded areas into "protective management". For some roadless acres, it may be determined that there are some resource management needs that are not compatible with “protective management”. The FEIS includes 7 Alternatives, each with different levels of "protective management". Alternatives C, E, and G provide higher levels of wilderness and backcountry management. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options responsive to the wide range of public desires evident in the comments. See also Response #719.

**686. The Forest Service should protect forests and the environment**
**For areas listed in ‘Mountain Treasures’**

**687. The Forest Service should fully protect “Virginia's Mountain Treasures” with 1.B, Recommended Wilderness Study, or 12.C, Natural Processes in Remote Areas, Management Prescriptions.**
Thank you for expressing your views on this Alternative. All views were carefully considered during development and evaluation of the existing Alternatives. The "Virginia Mountain Treasures" were considered during the roadless area inventory process. The FEIS includes 7 Alternatives, each with different allocations of the "Virginia Mountain Treasures." Alternatives C, and to a lesser extent G and E allocate many of these areas to management prescriptions with no timber harvesting or road construction. Alternative I recommends for wilderness study a "Virginia Mountain Treasure" which was not an inventoried roadless area, Cave Springs.

**688. The Forest Service should allocate protective management prescriptions to several areas.**

**689. The Forest Service should inventory, analyze, protect, and designate several areas.**
Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. Alternative C, which was eliminated from detailed study, best meets your request by allocating these areas to custodial management. Alternative E allocates many of these areas to backcountry recreation. Alternative G allocated many of these areas to old growth. The areas mentioned were considered during the process of considering areas for inclusion in the roadless area inventor and found to not meet the criteria. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

## Maintaining Roadless Character

**690. The Forest Service should be consistent with its own documentation of which prescriptions are compatible with maintaining roadless character.**
Chapter 3, Social/Economic Environment, Recreation, Wilderness and Roadless Areas of the EIS documents which management prescriptions maintain roadless character on the Jefferson National Forest. Although management prescriptions across the Southern Appalachians are consistent in number, title, and emphasis, specific desired conditions and standards vary according by Forest in order to respond to local issues and as a result of local citizen involvement in the planning

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process. Therefore, each Forest may have a different list of which management prescriptions maintain roadless character. On the JNF, we developed Forestwide standards to protect semi-primitive recreation opportunities (FW-160 through FW-166 and FW-212 in the PRLRMP). These standards also serve to maintain roadless character regardless of the management prescription assigned to an area, because all inventoried roadless areas are assigned an ROS classification of SPNM, SPM, or SP2 in the PRLRMP.

**691. The Forest Service should list prescriptions considered roadless compatible.**
We have updated the discussion in the FEIS to include a list of those prescriptions that maintain roadless character.

**692. The Forest Service should explain an inconsistency in calculating the acreage of roadless areas on the Jefferson National Forest**
The DEIS describes two different methods of looking at how various alternatives dealt with inventoried roadless areas. The first method examined how each alternative maintained roadless character as defined in Forest Service Handbook 1909.12, Chapter 7. The second method examined how each alternative met the Roadless Area Conservation Rule. These two methods are not identical and result in different results. The acreages were therefore correct, however, we have clarified the differences in methodology in the FEIS to avoid confusion.

## Roadless Evaluation

**693. The Forest Service should adequately evaluate all the roadless areas on the Jefferson National Forest.**
The inventoried roadless area evaluations were largely completed in 1999. Inventories of heritage resources are continually being updated. We have reviewed the roadless evaluations, but no significant changes were warranted. While it is true that shale barrens exist in many of these areas, the presence of white-haired leatherflower was not confirmed. The FEIS includes 7 alternatives for managing inventoried roadless areas based on citizen involvement in the forest planning process. Under the PRLRMP, all or portions of 12 inventoried roadless areas are protected in Management Prescription 1B, Recommended Wilderness Study Areas, including two mentioned in your comments. All others mentioned in your comments are within management prescriptions having standards designed to retain the roadless character of the areas. See table 3-139, of the EIS.

**694. The Forest Service should provide more information on roadless areas under consideration for wilderness as required by NEPA.**
Appendix C of the EIS provides information about each roadless area. Chapter 3 of the EIS, under the section on Roadless Areas provides information about how each roadless area will be managed in each alternative. Chapter 2, in the Comparisons of Alternatives, section provides a table that compares the acres recommended for wilderness designation by each alternative and the acres that would maintain their roadless characteristics by alternative, along with a table that identifies which roadless areas are recommended for wilderness designation by each alternative. Lastly, the Record of Decision provides the rationale for why the roadless areas were or were not recommended for wilderness designation in the selected alternative.

**695. The Forest Service should make clear that human activities may not render an area ineligible for potential wilderness study.**
As stated in the Appendix C Introduction, FSH1909.12, Chapter 7 criteria allow certain limited amount of human activity and development within inventoried roadless areas which would not preclude considering an area for wilderness consideration.

**696. The Forest Service should adequately explain the rationale for not recommending areas for wilderness.**

**697. The Forest Service should clarify the criteria used in determining wilderness recommendations.**

**698. The Forest Service should not use a formulaic process in evaluating potential wilderness areas.**

**699. The Forest Service should better communicate the basis for recommending areas for wilderness study.**

There is no cookbook or scorecard for how recommendations developed in various alternatives; rather judgment was used given the information displayed in Appendix C of the EIS and the overall theme of each alternative. Chapter 3 in the EIS compares how roadless area management would be handled in each alternative and the extent to which wilderness study area recommendations were considered appropriate as part of an alternative theme. The interdisciplinary team and forest leadership, with input from citizen workshops, then mapped the different alternatives using this information and personal and professional opinions about the areas and their best allocation given a particular alternative theme. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments, including recommendations for wilderness study areas.

**700. The Forest Service should not use regional guidance as rigid proclamations when recommending wilderness.**

The commenter references FSH 1909.12, Chapter 7.21 of the evaluation criteria, but does not recognize that Chapter 7.21a – Additional Capability Characteristics for Areas in the East, is also applicable. Under Chapter 7.21a, it states that "National Forests east of the 100th meridian may contain limited nonconforming uses and/or nonconforming structures and improvements while retaining capability for wilderness designation.

**701. The Forest Service should be consistent when eliminating potential wilderness recommendations.**

Determining the inventory of wilderness is a straight forward account of what areas Congress has designated as wilderness. We used the evaluation process for recommending roadless areas to the National Wilderness system as defined in FSH 1909.12, Chapter 7. Appendix C of the EIS contains the Roadless Area Evaluations. Wilderness study area recommendations responded to the management emphasis of each alternative and are displayed in the EIS in Chapter 3, Social/Economic Environment, Recreation, Wilderness and Roadless Areas. The Record of Decision explains the rationale for wilderness study area recommendations in the Selected Alternative.

**702. The Forest Service should overlay bear habitat with wilderness candidates.**

**703. The Forest Service should overlay bear habitat concerns with wilderness candidates.**

The Roadless Area Evaluations, Appendix C of the EIS, identify any species habitat associates or individual species with habitat needs within individual roadless areas. This includes bear habitat. Habitat needs of the black bear and the effects of the various alternatives on black bear habitat are identified in Biological Environment, Terrestrial Species and Their Habitat, Demand Species, Black Bear in Chapter 3 of the EIS (page 3-176 through 3-178, DEIS). Table 3-98 displays acres of remote habitat by alternative including existing and recommended wilderness, however, wilderness designation is not a requirement of black bear habitat.

**704. The Forest Service should remove bias against consideration of stand alone wilderness areas.**

The Regional guidance on developing a roadless area inventory, dated May 19, 1995; and the guidance on evaluating the roadless areas, dated July 22, 1997; both outline processes to identify and evaluate all the areas that meet the criteria

for potential wilderness and not just those areas adjacent or contiguous to existing wilderness areas. The "design criteria" for the "rolling alternative" (Alternative I) did include a statement to start the development of this alternative with the "wilderness additions" being recommended for wilderness. However, this was only to be a "starting off point" for further discussions/deliberations on which areas to include for wilderness recommendations within this particular alternative. It was these discussions/deliberations with the public, along with the information applicable to each roadless area that led to the ultimate decision on which areas to recommend for wilderness in Alternative I. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**705. The Forest Service should make critical wilderness information more accessible.**
Chapter 2, Issue 8 (pages 2-22 through 2-24, DEIS), Chapter 3, Social/Economic Environment, Recreation, Wilderness and Roadless Areas (pages 3-251 through 2-262, DEIS) and Appendix C, Roadless Area Evaluations provide this information.

## Roadless Evaluation - Supply and Demand and Need

**706. The Forest Service should better document wilderness supply versus demand.**
**707. The Forest Service should include a wilderness supply and demand analysis in the DEIS.**
**708. The Forest Service should gather accurate wilderness demand baseline data.**
**709. The Forest Service should adopt a different methodology for determining wilderness capacity.**
**710. The Forest Service should calculate wilderness recreational capacity based on averaged values rather than peak values.**
**711. The Forest Service should not use the Practical Method Capacity method.**
**712. The Forest Service should provide Congress with a sufficient array of wilderness options to achieve Wilderness Act goals.**
Many comments were received throughout the planning process concerning the 1997 guidance from the Region on methodologies for calculating recreational supply and demand for wilderness. This included a calculation of the "practical maximum capacity" of roadless and wilderness areas. The Region recognized the concerns with this methodology and issued a letter on March 8, 2002 which emphasized that these calculations are "theoretical" and that the "rationale for the wilderness recommendations should be based on the merits of each roadless area and the sustainability of wilderness values".

As a result, the calculations from this methodology are not included anywhere in the EIS, and they were not a determining factor in making wilderness recommendations. What were determining factors were the factors identified in the Forest Service Handbook at FSH 1909.12, Chapter 7.23b. These factors are: (1) The location, size, and type of other wildernesses in the general vicinity and their distance from the proposed area, (2) Present visitor pressure on other wildernesses, (3) The extent to which nonwilderness lands provide opportunities for unconfined outdoor recreation experiences, (4) The habitat needs of certain biotic species (those that need "protected areas" or those that cannot survive in "primitive surroundings"), and (5) An area's ability to provide for preservation of identifiable landform types and ecosystems.

**713. The Forest Service should analyze wilderness capability, availability, and need as specified in the National Forest Management regulations.**
**714. The Forest Service should determine the need for wilderness through an analysis of the local and national distribution of wilderness.**
An overall assessment of the "need" for wilderness on the Jefferson National Forest was summarized in the DEIS, Appendix C. This section has been expanded in the FEIS in response to these comments. The Record of Decision explains the rationale for which inventoried roadless areas are recommended for wilderness study in the

Selected Alternative.

**715. The Forest Service should address wilderness recommendations on a regional basis.**
Lands were evaluated from a regional perspective as part of the evaluation for recommendation for wilderness study as part of the Southern Appalachian Assessment. This information was incorporated by reference and used to develop the Wilderness Need section of Appendix C, Roadless Area Evaluations. This section has been expanded in the FEIS. Approximately 12% of the total number of wilderness areas designated in the United States is located in the Forest Service's Southern Region. These 12% cover a wide variety of ecosystem types. The only units in the Southern Region without a designated wilderness are the Land Between the Lakes National Recreation Area in Golden Pond, KY and the Caribbean National Forest in Puerto Rico. Forty-nine percent of the wilderness areas recommended in the Southern Appalachian Assessment is being recommended for wilderness study. These 49%, if Congressionally designated as wilderness, will help to further implement the goals of the Wilderness Act.

**716. The Forest Service should not presume that a wilderness designation allows only for recreation.**

**717. The Forest Service should acknowledge that Wilderness designation is not for recreation alone.**
Chapter 3 of the EIS, Social/Economic Environment, Recreation, Wilderness and Roadless Areas identifies the many benefits of wilderness (page 3-253 through 3-254, DEIS). Appendix C, Roadless Area Evaluations, Wilderness Need (page C-205 through C-206, DEIS) goes into more detail regarding the benefits of and need for wilderness. Recreation is only one of many factors evaluated. We followed direction in FSH 1909.12, Chapter 7.2 - Evaluation Of Potential Wilderness in evaluating potential wilderness areas. An area recommended as suitable for wilderness must meet the tests of capability, availability, and need. In addition to the inherent wilderness quality it possesses, an area must provide opportunities and experiences that are dependent upon or enhanced by a wilderness environment. The Wilderness Need section was expanded and improved in the FEIS as a result of these comments.

**718. The Forest Service should designate Wilderness or Wilderness Study Areas in all Ecological Units on the forest.**

**719. The Forest Service should document the relative wilderness representation by ecological province, section and subsection.**
Table 3-141 in the DEIS displays the ecosystems represented by wilderness or wilderness study recommendations by alternative. Appendix C of the EIS contains the individual roadless area evaluations which identify what Ecological Section and Subsection is represented. An overall assessment of the "need" for wilderness on the Jefferson National Forest is summarized at the end of Appendix C. This section has been expanded in response to these comments. It includes a discussion of representation by Ecological Section and Subsection. The Record of Decision explains the rationale for which inventoried roadless areas are recommended for wilderness study in the Selected Alternative.

## Recommend More or Less Wilderness

**720. The Forest Service should include the following areas for recommended wilderness and wilderness expansions: Brush Mountain, Brush Mountain East, Little Walker Mountain, Crawfish Valley, North Creek, Cornelius Creek, Hoop Hole, Garden Mountain, Hunting Camp / Little Wolf Creek, North Mountain, Price Mountain, Raccoon Branch, Seng Mountain, Long Spur, Horse Heaven, Brushy Mountain, Panther Knob, Stone Mountain, Shawvers Run, Mt. Lake expansion, Peter's Mountain expansion, Lewis Fork expansion, Little Wilson expansion, James River Face expansion, Kimberling Creek expansion, "Virginia's Mountain Treasures".**

AGENCY RESPONSE TO PUBLIC COMMENT

SPECIAL DESIGNATIONS

Because of increased population growth

Because of economic and ecological benefits

Because demand for wilderness is increasing

Because it provides migratory songbird habitat

To gauge the effects of land under various active management regimes

**721. The Forest Service should not recommend additional wilderness areas.**

Because wilderness limits fire fighting efforts

Because wilderness limits management options

Because biodiversity and habitat productivity are better served by a mix of plants and animals throughout the forest

Because wilderness limits access

Because wilderness designation does not provide economic benefits to surrounding communities

Within Bland County

Including areas in the Mt. Rogers country

Where there are outstanding mineral rights

And manage for multiple uses

And continue to support mountain biking

Because there is currently enough wilderness

**722. The Forest Service should not recommend additional Roadless Areas.**

**723. The Forest Service should not make roadless areas into wilderness areas.**

**724. The Forest Service should limit recommendations for wilderness area studies.**

**725. The Forest Service should include additional areas as wilderness study areas.**

Because the public wants additional wilderness

**726. The Forest Service should recommend the following areas for wilderness study: Brush Mountain, Brush Mountain East, Little Walker Mountain, Long Spur, Crawfish Valley, Garden Mountain, Beartown Wilderness A and B, Brushy Mountain, Horse Heaven, Panther Knob, Raccoon Branch, Seng Mountain, James River Face addition**

Thank you for expressing your views on this Alternative. Your suggestions were carefully reviewed and considered as we prepared the FEIS and RLRMP. We are directed by the Code of Federal Regulations to evaluate and consider roadless lands for wilderness. 36 Code of Federal Regulations (CFR), 219.17 Evaluation of Roadless Areas, directs the Forest Service, unless stated differently by law, to evaluate and consider roadless areas for recommendation as potential wilderness areas during the forest planning process. Roadless areas include previous inventoried roadless areas which remain essentially roadless and undeveloped, and have not been designated as wilderness or designated to not be considered for wilderness by law, and other essentially roadless areas at the discretion of the Forest Supervisor. FSH 1909.12, Chapter 7 provides direction for inventory and evaluation of potential wilderness (or roadless) areas.

The roadless evaluations in Appendix C of the FEIS discuss the many benefits wilderness can provide, including fire control, wildlife habitat, access, mineral ownership, adjacent land uses, the counties the roadless area lies in, migratory songbird habitat, as well as the need for additional wilderness considering increased population growth. The recreation section of Appendix B of the FEIS discusses how economics were considered. Chapter 3 of the EIS in its entirety

describes effects to all resources and uses under the various alternatives, some of which include more active management and some of which include less active management.

Alternative G recommends all roadless areas mentioned above for wilderness study. Alternative F does not include any new wilderness study recommendations. Alternatives A, B, D, E, G, and I recommend some Virginia Mountain Treasures. Alternatives E, G, and I recommend for wilderness study some Virginia Mountain Treasures which were not inventoried as roadless. The FEIS includes 7 Alternatives, each with different amounts of recommended wilderness study. The Recreation Section of Chapter 3 of the EIS discusses the different wilderness study recommendations by alternative. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**727. The Forest Service should make 50 percent of the Jefferson National Forest wilderness.**
Forest Service provides direction in FSH 1909.12 for evaluation of areas for potential wilderness recommendation. The evaluations are done looking at each area individually and wilderness recommendations are based upon those evaluations rather than on prescribed percentage of National Forest Land.

**728. The Forest Service should consider a wider range of wilderness recommendations**
The alternatives in the EIS provide a range of wilderness recommendations from 97% of the total roadless area acreage being recommended in Alt. G to 0% of the roadless area acreage being recommended in Alt. F. With the exception of the North Fork of Pound Roadless Area, every roadless area is recommended for wilderness designation in at least one alternative considered in detail. Also, in Alternatives E, G, and I 100% of the acres in the roadless areas will have their roadless character maintained.

**729. The Forest Service should honor the request of the Board of Supervisors of Craig County to add additional Wilderness acreage.**
Inventoried roadless areas within Craig County were evaluated in Appendix C of the FEIS. The views of citizens, local governments, and other communities of interest were carefully considered during development and evaluation of the existing Alternatives. The FEIS includes 7 Alternatives, each with different amounts of recommended wilderness study. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**730. The Forest Service should consider non-inventoried roadless areas for possible wilderness recommendations.**
Several alternatives (C, E, G, and I) recommend wilderness study for areas not inventoried as roadless.

## WILDERNESS MANAGEMENT

**731. The Forest Service should clarify references to "defoliation" and provide support for any exceptions to the Wilderness Act.**
These two standards have been changed in the Final PRLRMP. Management of insects and diseases in wilderness is covered under FSM 2324.1and is derived from section 4 (c) of the Wilderness Act. Please refer to the DEIS, page 3-203 for a more in depth discussion of the gypsy moth and potential effects to vegetation.

AGENCY RESPONSE TO PUBLIC COMMENT

SPECIAL DESIGNATIONS

## WILD AND SCENIC RIVERS

**732. The Forest Service should properly evaluate all rivers that qualify under the Wild and Scenic Rivers Act.**

**733. The Forest Service should conduct a suitability analysis of several rivers for Wild and Scenic River designation.**

We followed FSH 1909.12, Chapter 8.14, which directs us to study rivers and evaluate their eligibility for inclusion in the National Wild and Scenic Rivers System. Appendix D contains the evaluation of each river to verify that it meets the eligibility criteria specified in sections 1(b) and 2(b) of the Wild and Scenic Rivers Act. Chapter 3, Social/Economic Environment, Recreation, Wild and Scenic Rivers describes the effects to outstandingly remarkable values (ORVs) for eligible rivers and streams by alternative. We have latitude to conduct suitability studies as part of the planning process or subsequently. We have elected to conduct suitability studies for the eligible streams after approval of the Final RLRMP. In the interim, we do provide for protection of the ORVs until a decision is made as to the future use of the river and adjacent lands.

**734. The Forest Service should include a portion of the Roaring Branch River as a Wild and Scenic River.**

Roaring Branch was studied and found eligible for designation under the Wild and Scenic Rivers Act. It is preliminary classified as "Wild" under FSH 1909. Refer to EIS Appendix D, for more detail on the eligibility determination.

**735. The Forest Service should adequately address the effects of mining On Wild and Scenic Rivers**

Effects on eligible Wild and Scenic River corridors have been added to the FEIS as a result of your comment.

## OTHER SPECIAL DESIGNATIONS

**736. The Forest Service should not designate the High Knob area as a National Recreation Area.**

Thank you for expressing your views. Alternative I is consistent with your request. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments, including recommendations for wilderness study and national scenic areas.

**737. The Forest Service should not manage the Clinch Ranger District in a way that that could extremely limit multiple uses.**

Thank you for expressing your views. Alternative I is consistent with your request. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments, including recommendations for wilderness study and national scenic areas.

**738. The Forest Service should protect and maintain the resources of the North Creek watershed.**

We agree the North Creek watershed is a special area with many valued resources. Each of the 7 Alternatives reflects these values in different ways in the North Creek area. Alternative I allocates North Creek to a special management prescription (4K1) in order to balance the tremendous recreational, ecological, biological, and social values present in this area. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options for addressing the North Creek area. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**739. The Forest Service should develop proper standards to manage the Mount Rogers Crest Zone Special Area.**

Standards for management of the Mount Rogers Crest Zone are provided in Chapter

3, Management Prescriptions 4K3 and 4K4, Chapter 4, Management Area 7, and forestwide standards in Chapter 2 of the RLRMP.

**740. The Forest Service should include the results of the High Country Limits of Acceptable Change for the high country in the Mount Rogers National Recreation Areas in the final plan.**

**741. The Forest Service should include the recommendations of the Limits of Acceptable Change study in the management of High Country on Mount Rogers.**

Many of the results of LAC process have been incorporated into Chapter 3, Management Prescriptions 4K3 and 4K4, Chapter 4, Management Area 7, and forestwide standards in Chapter 2 of the Final RLRMP. The remainder of the LAC process implementation will occur at the site-specific project level NEPA analysis.

**742. The Forest Service should allocate a 4K, Special Areas, Management Prescription to the Whitetop Laurel area.**

Thank you for your comment. Both Whitetop Mountain and Whitetop Laurel are allocated to special management prescriptions under Alternative I.

**743. The Forest Service should allocate the Management Prescription 4.F, Scenic Areas, to several areas.**

**Including Seng Mountain**

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. Seng Mountain and several other inventoried roadless areas were carefully reviewed as a result of public comment on the DEIS and PRLRMP. Although none of the Alternatives specifically recommend Seng Mountain as a scenic area (4F), several Alternatives recommend wilderness study or allocate Seng Mountain to backcountry recreation (12B). Either one of these management prescriptions would accomplish many of the same goals as a scenic area. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**744. The Forest Service should designate more areas as geological areas 4.C.1.**

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. We did consider designating more areas as geological areas in Alternative E. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**745. The Forest Service should revise the management direction for specific areas of concern.**

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. Crawfish Valley/Bear Creek, North Creek, Dismal Creek, Big Wilson Creek, Mount Rogers, Pine Mountain and several other areas were carefully reviewed as a result of public comment on the DEIS and RPLRMP. The FEIS includes 7 Alternatives, each with different combinations of management prescriptions for management of these areas. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum of options for addressing the significant issues.The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**Crawfish Valley / Bear Creek**

Each alternative addresses your comment in different ways, but all provide permanent protection for the land, resources, and values of the Crawfish Valley/ Bear Creek area through the mission of the USDA Forest Service.

**North Creek Special Area**

AGENCY RESPONSE TO PUBLIC COMMENT

SPECIAL DESIGNATIONS

The map displaying suitability for timber production in the North Creek area was in error in the DEIS and PRLRMP. This map has been corrected.

**Dismal Creek**

Changes have been made to Alternative I in the Dismal Creek area related to the special biological area along the Creek itself. Alternatives E and G may better reflect your goals for this area.

**Big Wilson Creek, Mt. Rogers, and Pine Mtn.**

We believe that Alternative I best addresses your interests for managing these areas. Please see management prescriptions 11, 9F, 4K3 and 4K4 in Chapter 3 of the RLRMP, management area 7 in Chapter 4 of the RLRMP, and forestwide direction in Chapter 2 related to wildlife, threatened, endangered, and sensitive species, rare communities, vegetation, and rangeland resources.

# HERITAGE AND CULTURAL RESOURCE MANAGEMENT

**746. The Forest Service should seek input on heritage and cultural resources from all that may be impacted by management activities.**

**747. The Forest Service should identify and consider cultural resources prior to federal undertakings.**

**748. The Forest Service should consider early home places when developing recreational opportunities along Pine Mountain.**

**749. The Forest Service should protect and preserve cultural and heritage sites of peoples not of European decent.**

The RLRMP contains forestwide standards for protection of heritage resources. Chapter 3 of the EIS compares the effects of the 7 alternatives on heritage resources. The Jefferson National Forest has a strong record of compliance with the historic preservation requirements in the National Historic Preservation Act, s. 106 which requires the agency to "take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register". The Forest works closely with the State Historic Preservation Office and Tribal Historic Preservation Office through a Memorandum of Understanding that describes how basic heritage inventory, survey, evaluation, and protection are undertaken. In every case, heritage values are considered during the project-level NEPA process and no actions that may adversely affect heritage properties eligible for the National Register of Historic Places are undertaken without consultation and, where necessary, data recovery or mitigation.

**750. The Forest Service should not create an amusement park atmosphere when showing a cultural / heritage resource.**

Amusement park atmospheres are not part of the desired condition of any management prescription or Alternative.

**751. The Forest Service should not demonstrate "present day logging systems" in cultural / heritage areas.**

The emphasis of Management Prescription 4E, Cultural/Heritage Areas is highlighting and protecting unique historic resources as well as to develop public understanding of, and appreciation for, the influence of human history on the forest ecosystem. Early successional forest conditions may be created when compatible with the cultural and historic objectives of each area. See the PRLRMP, page 3-29.

# NATURAL RESOURCES MANAGEMENT



## NATURAL RESOURCES MANAGEMENT

### Natural Resources Management (General)

**752. The Forest Service should manage National Forest System lands in a manner that provides multiple use benefits for all Americans.**

**To benefit forest health and future generations**

**Based on documented suitability analysis of surface renewable resources**

**With all other uses, including timber harvest, being secondary**

**To provide renewable resources**

**With adequate analysis of surface renewable resources**

**Including protection of wilderness areas**

The EIS for the RLRMP addresses 20 significant issues that include the wide range of desires, wants, needs, and concerns that have been expressed by the JNF users. All values, whether economic, technical, or unquantified environmental amenities, were given equal consideration in development of the alternatives. Different individuals and communities of interest place different relative weights on the importance of providing different uses, values, products and conditions. Often times, meeting one set of desires is in conflict with meeting other needs or concerns. The challenge is to try to find the appropriate level of management that will best address all these issues. The Record of Decision identifies which one of the FEIS alternatives will be selected as the Revised Plan by the Regional Forester as the alternative that maximizes net public benefits in an environmentally sound manner. The Record of Decision explains which alternative does the best job of maintaining and enhancing the special values the Jefferson has to offer for future generations.

**753. The Forest Service should manage forest lands based on multiple uses.**

**To enhance job creation and support livelihoods**

We are recognized internationally as a leader in multiple-use and sustainable ecosystem management. Our mission seeks balance between the capacity of the land and what people want from that land. The concept of multiple use recognizes that not every multiple use can necessarily be accommodated on the same tract of National Forest System land. In working with various individuals, groups, organizations and agencies, the interdisciplinary team developed management prescription areas which emphasize different mixtures of management practices that complement or enhance compatible resource uses. See RLRMP Chapter 3 for a discussion of these prescriptions.

Alternatives A and D were designed to emphasize the benefits to local economies and production of commodities. Although timber production is not a dominant objective in Alternative I, it is the primary method for achieving vegetation and habitat management for other resources. Mineral development is important in all of the alternatives, especially in the southwestern portion of the Forest. The socio-economic analysis includes estimates of the jobs and income potentially impacted in various commodity sectors of the local economy. The Regional Forester will weigh this potential for gain or loss of employment as one of the factors considered in selecting the alternative to serve as the Final RLRMP. The Forest will continue to work with counties under the Rural Development program to seek ways to provide

AGENCY RESPONSE TO PUBLIC COMMENT

NATURAL RESOURCES MANAGEMENT

additional employment in those counties where unemployment is high and opportunities for employment are limited.

**754. The Forest Service should protect natural resources for future generations.**
To restore public trust

We agree. The core of our mission is to care for the land and serve people now and for future generations.

**755. The Forest Service should maintain a balanced approach of managing the forest's resources, and provide quality-of-life opportunities.**
For all users

For future generations

We agree. Such a "balanced approach" is important to this RLRMP. The Record of Decision speaks to that balance when it addresses the Rationale for the Decision. The selection of an alternative for management of the forest is complex and requires examination of many factors, comments, and impacts. We feel that this was done.

**756. The Forest Service should manage forest lands for preservation.**

**757. The Forest Service should emphasize environmental preservation, protection, and restoration.**
In the Record of Decision, the Regional Forester will discuss the rationale for selecting the appropriate mixture of uses, values, products and services in the alternative selected to serve as the Revised Plan. However, no single factor will lead to this selection.

**758. The Forest Service should end commercial resource activities.**
PRLRMP does not make direct decisions about whether or not commercial resource activities, per se, will or will not exist on National Forest lands. Rather, a Forest Plan makes strategic decisions, consistent with NFMA that "...provide for multiple use and sustained yield of goods and services from the National Forest System..." (36 CFR 219.1(a)). Strategic decisions include Desired Future Condition (DFC), Goals and Objectives to achieve DFC, and a list of activities that may be used to achieve DFC.

**759. The Forest Service should acknowledge the value of the forest for non-extractive uses.**

**760. The Forest Service should focus forest management on recreation and environmental protection resource activities.**
We certainly agree that the JNF is valuable for many reasons and multiple uses. This is acknowledged throughout both the RLRMP and FEIS. The Record of Decision provides the rationale for which alternative maximizes net public benefits in an environmentally sound manner.

**761. The Forest Service should prohibit clearcutting, development, and road building.**
In old growth areas

The EIS and RLRMP do reflect the mandate presented in the "Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region" (June 1997). The RLRMP provides for present and future representation of old growth community types, their distribution, and variety of patch sizes. Existing old growth is protected through Forestwide and management prescription standards in the PRLRMP. Appendix D of the PRLRMP describes the strategy for considering additional old growth identified during project specific planning.

Wilderness and backcountry areas will eventually become old growth, and will serve as large patches or core areas of old growth in the not too distant future (less than 50 years). In the Final RLRMP, wilderness and backcountry areas comprise

approximately 26% of the JNF. Many additional areas unsuitable for timber production will also develop old growth characteristics over time. 64% of the JNF is unsuitable for timber production in the Final RLRMP.

### EDUCATION

**762. The Forest Service should support natural resource education programs for the public**
We agree and we do. Environmental education is a very valuable tool and can be done to the extent that budgets allow, but it does not need to be addressed in a Forest Plan. A Forest Plan is a strategic document that makes only the decisions defined in the National Forest Management Act. Other programs on the forests do address environmental education.

**763. The Forest Service should establish a timber management demonstration area in Management Area 5.**
Management Area 5 – Glade Mountain/Pond Mountain is administered by the Mount Rogers National Recreation Area, though it is not part of the National Recreation Area, but is part of the old Wythe Ranger District. Bear management is the focus of this area along with continued monitoring and restoration of past mining impacts. After considering your comment, it may be more appropriate to use operational forest management with appropriate signing to display various timber management practices as the management prescriptions are implemented in this area. Since this is a site-specific decision, we are deferring this request to the appropriate implementation project that shows merit.

## Restoration

**764. The Forest Service should define "restoration" and manage forests based on a priority of ecological restoration of native forest communities**
**To increase habitat for native species**

**765. The Forest Service should manage National Forest System lands for ecological restoration.**
**And clarify how the agency will meet restoration objectives**

**In aquatic habitats**

**To allow restoration of self-sustaining ecosystem processes**

**Because these lands serve as an escape from urban environments**

Since the term "restoration" does mean different things to different people, we developed 7 different alternatives (as well as two additional alternatives which were not studied in detail). Each alternative responds to the 20 significant issues in different ways, and consequently addresses people's views of "restoration" in different ways. If restoration means no active management to you, then Alternative C best meets your view of restoration. If restoration means active management to you, then perhaps Alternative D best meets your views. Alternative B is a mix of active management designed to restore fire dependent ecosystems which have declined as a result of successful fire suppression, and passive management to restore old growth forests through management prescriptions 6A, 6B, and 6C. Alternative I is also a mix of active and passive management, but balances the restoration concepts of Alternative B with social and economic considerations like high quality scenery, recreation, wilderness, hunting, and other demands. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**766. The Forest Service should conduct ecological restoration activities based on the underlying processes of ecosystem deterioration.**

**767. The Forest Service should focus on ecological restoration rather than timber harvest.**

AGENCY RESPONSE TO PUBLIC COMMENT

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Through a scientifically-based approach

We regulate extractive activities on the national forest consistent with governing legislation and with land allocations determined through the forest planning process. These activities are managed to minimize environmental damage and more often to provide long-term benefits. Restoration of degraded ecosystems is undertaken when necessary whether these degradations were naturally or human caused. See also Response #768.

## ROLE OF FIRE IN ECOSYSTEMS

**768. The Forest Service should recognize that their methods of estimating fire histories may not be reliable or appropriate for the southeast.**

**769. The Forest Service should not conduct timber harvest or prescribed burns in Southern Appalachian forests.**

Because data shows that management actions are unnecessary

Because Cherokee National Forest Archaeologist's data shows that Southern Appalachian forests were dominated by tall, old trees as a stable ecosystem

Because the plans are based on an early successional model

Because fires are FUELED by underbrush, not large trees

Because home owners recognize and accept the fire risk

Because clearcuts will become a greater fire risk than standing trees

**770. The Forest Service should recognize that forest-wide age class distribution is of no significance in a restoration model.**

Based on synthesis of the scientific literature, our understanding is that Southern Appalachian forests historically have been subject to highly variable disturbance regimes across the landscape. This variation resulted from the interaction of fire, wind, and other disturbance factors with the highly variable topography and edaphic conditions of the mountains. We disagree with the Cherokee National Forest archaeologist, and follow most current scientific literature, in recognizing that fire, primarily of Native American origin, played an important role in maintenance of upland pine and oak forests, and open woodlands, savannas, and grasslands. See also Response #527. Compared to today, forest structure was likely more open on upland sites, due to the influence of fire, and more heterogeneous on lower slopes and coves, due to gap-phase dynamics of older forests. Overall, within-stand structures were likely variable due to the variable effects of natural disturbance factors. Many areas would not easily be categorized as either even-aged or uneven-aged, but some level and pattern of older residual overstory trees would almost always be present, even in areas providing important early-successional habitat. This variable structure can be approximated with uneven-aged, two-aged, and even traditional even-aged management systems, all of which involve retention of varying levels of overstory structure. A patchwork of uniform even-aged stands established by clean clearcuts is clearly outside the historical range of variation of forest structure and is also clearly not the desired condition for any portion of the national forest.

Although the Revised LRMP includes objectives for restoration of native fire-maintained habitats, we recognize that we will not be able to restore the influence of fire to the landscape to historical levels due to a variety of logistical and social reasons. Creation of early-successional forests can compensate for the loss of open fire-maintained habitats for some species. So, although we recognize that the mix of types of early-successional habitats maintained under the Revised LRMP cannot reflect historical conditions, we have considered the overall abundance of these

habitats within an historical ecological context to arrive at objective levels. As some of these fire-maintained habitats are restored, need for early-successional forest as habitat for some species will decline. However, need will not disappear; other species, such as ruffed grouse, depend upon the dense woody growth found in early-successional forests. In addition, other multiple-use considerations, such as need for habitat to support game species for recreation, ecological restoration of native forests, forest health considerations, and in some cases timber production, will continue to make creation of some level of early-successional forest desirable.

We agree that fires are fueled by underbrush, not large trees. See also Response #847. We also acknowledge that this particular commenter recognizes and accepts fire risk, however other homeowners have expressed concern about fire risk to their homes and property throughout the planning process. Fuels reduction projects are appropriately made at the site-specific project level and not at the broad strategic level of a Forest Plan. These site-specific projects will follow the NEPA process and include discussions with, and input from, nearby potentially-affected homeowners. These site-specific analyses will use the best science to determine which alternative management scenarios will reduce fire risk in the short and long term and what silvicultural system is appropriate given the purpose and need for the project, identified issues from citizens, and actual on-the-ground conditions.

**771. The Forest Service should adequately address the role of fire in the forests of the Southern Appalachian.**

The RLRMP provides direction for desired future conditions of ecosystems. In many cases, fire is a necessary tool to meet those desired conditions. We used local research that discussed how in the southern Appalachian Mountains, the upland pine and oak communities evolved under a short return interval, low intensity fire regime. See also Response #768.

**772. The Forest Service should not use prescribed fire or timber harvest to replicate past burn cycles.**

**Because evidence of cyclic burning on the Jefferson National Forest is speculative**

Chapter 3 of the DEIS cites the research that was utilized to determine the mean fire return intervals that are planned to be replicated for the future to help maintain, restore and enhance natural ecological processes and to reduce future fire suppression costs by proactively managing hazardous fuels. See also Response #768.

**773. The Forest Service should conduct additional research and environmental analysis on the role of fire prior to its use.**

Appendix H cites numerous research articles regarding the role of fire some of which was conducted on the George Washington and Jefferson National Forests. Each prescribed burning project must have a NEPA analysis completed prior to the prescribed burn being implemented.

**774. The Forest Service should designate watersheds where fire has occurred as "burned ecological process study areas."**

Although the term "burned ecological process study areas" has not been mentioned before (despite over 160 public involvement opportunities throughout this process), we think either the custodial management (0A) prescribed in Alternative C or the management, maintenance, and restoration of forest communities (9H) prescribed in Alternative I are consistent with this request. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

## TIMBER RESOURCE MANAGEMENT

AGENCY RESPONSE TO PUBLIC COMMENT

NATURAL RESOURCES MANAGEMENT

## Timber Resource Management (General)

**775. The Forest Service should harvest timber from National Forest System lands.**

For multiple reasons

For forest health

To support wildlife

To manage habitat and promote economic benefits and tourism

To provide useful products

To benefit rural communities

To provide employment and develop roads

To support the availability of markets and mills

To support infrastructure for responsible timber harvest on private lands

Because timber harvesters know how to harvest timber correctly

Because timber harvest sites are inspected

**776. The Forest Service should not harvest timber from National Forest System lands.**

Through a no timber harvest alternative

For multiple reasons

Because it does not benefit forest health

Because the timber generates minimal revenue and paper, but generates environmental effects

To protect medicinal plants

Because there is plenty of wood available elsewhere

For social reasons

To achieve economic efficiency

Because recreation generates greater income than timber-based economies

Because taxpayers receive no benefit

Because it creates negative effects on private timber production

For aesthetic reasons

Because timber harvest will negatively affect tourism-based businesses

Because it increases the fire hazard and effects

The Multiple-Use Sustained-Yield Act of 1960 [P.L. 86-517] requires that National Forests be established "and shall be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes." The Act further defined "Multiple Use" to mean the management of all the various renewable surface resources of the National Forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all or these resources over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions.

Seven alternative ways of addressing the various significant issues were developed in detail in the DEIS. These alternatives propose a range of annual Timber Sale Program Quantity ranging from 3.8 to 50.2 MMBF (million board feet). Alternative I has an annual Timber Sale Program of 21.8 MMBF. Alternative C, which was not

developed in detail, had no timber sale program. As described in Chapter 2 of the EIS, Alternative C was not considered to be a viable alternative. Alternative C would not provide "for multiple use and sustained yield of goods and services" as mandated by the Multiple-Use Sustained-Yield Act of 1960 [P.L. 86-517]. Alternative C would not meet the "purpose and need" as required by the National Environmental Policy Act of 1969 [P.L. 91-190]. Alternative C would not meet the requirement to "maintain viable populations of existing native and desired non-native vertebrate species in the planning area" (36 CFR 219.19).

Alternative I was identified as the Preferred Alternative in the DEIS. Alternative I was developed into the PRLRMP. The PRLRMP balances the needs for all resources at levels that address public needs and conforms with public laws. In the Record of Decision for the DEIS, the Regional Forester will document the rational for the decision of which alternative will serve as the Final RLRMP.

Vegetation management, often accomplished through commercial timber harvests, can serve as one of many tools to benefit forest health. The Forest Health analysis (pgs. 3-199 through 3-215, DEIS) discloses the positive impact that timber harvesting can have on various insects and diseases such as reducing susceptibility and vulnerability to the gypsy moth, halting active southern pine beetle (SPB) infestations, reducing SPB risk, and reducing the risk of oak decline by reducing the age/site index ratio (pgs 3-202 to 3-214). Alternatives E and G would implement minimal harvesting and the impacts of these alternatives were considered and disclosed in the DEIS.

The Forest Health analysis in the DEIS discloses the positive impact that timber harvesting can have on various insects and diseases (pgs 3-202 to 3-214). Forest wide standards FW-77 and 82 (page 2-22 of the PRLRMP specify the use of Integrated Pest Management in combating the gypsy moth and southern pine beetle, which includes the use of cultural treatments to reduce risk. Specific standards specifying the use of cultural treatments to reduce the occurrence of insects and diseases in general are found throughout Chapter 3 of the PRLRMP. For example, Standard 8A1-008 states "The forest health strategy is to minimize the occurrence of pest problems by managing host-type conditions. Suppression of pests, both exotic and native, is accomplished with all available integrated pest management tools." Several alternatives that would result in a higher annual timber harvest volume (Alternatives A, B, D, and F) as compared to Alternative I were examined and the impacts to Forest Health were disclosed on pages 3-202 through 3-214 of the DEIS. Alternative D strives to achieve a balanced age class distribution.

Various commenters expressed their views that timber harvesting either benefited wildlife or harmed wildlife and should therefore be continued or eliminated. Chapter 3, Biological Environment, Terrestrial Species and Their Habitats and Fisheries and Aquatic Habitats compare the effects of different levels of timber harvest for the seven alternatives analyzed in detail. Both a terrestrial and aquatic species viability analysis was conducted. All of the alternatives analyzed in detail provide habitat for the wide variety of other species that inhabit our Forest, however, Alternatives B and D have the least numbers of at risk species as a result of management and Alternatives E, F and G have the highest numbers of at risk species as a result of management. Alternatives A and I have 2 more species at very high, high, or moderate risk than Alternatives B and D, while Alternative G has 7 more species and Alternative E has 18 more species (DEIS, Table 3-94). The increased species at risk in Alternatives G and E are those associated with Table Mountain pine forest habitats, mature yellow pine forest habitats, early successional forest habitats, woodland, savannah, and grassland habitats. Alternative E has low levels of both prescribed burning and timber harvest. Alternative G has high levels of prescribed

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fire, but very low levels of timber harvest to maintain and restore important pine and early successional habitats. See also Response #768.

A variety of timber harvesting methods would be employed in each alternative to create early successional habitat to benefit wildlife. Tables 3-166 and 3-167 display the acres and methods through timber harvesting. A full range of activities was consideration in the seven alternatives developed in detail. Alternative I provides for the creation of 15,685 acres of early successional habitat by timber harvesting in the first 10 year implementation period. The majority of this activity is in wildlife management emphasis prescriptions.

Several comments indicated that commercial timber harvesting destroys the habitat of many medicinal plants requiring 70-80% shade because of the change in species composition when crown canopy is opened. Of the 52 difference management prescriptions allocated in the Plan only 16 contain lands suitable for timber production or 37% of the total JNF acreage. The primary use of timber harvesting in the PRLRMP is to maintain/restore wildlife habitat and enhance forest health to meet the desired forest conditions for the assigned management prescription. Change in crown canopy is likely to occur in these prescriptions. Because this PRLRMP is focused on achieving ecological, biological, and aesthetic desired conditions, lands suitable for timber production are focused on those areas where a sustainable timber harvest program is cost effective. Timber harvest is anticipated on approximately 2,008 acres each year or about 3/10 of 1% of the totally JNF acreage each year. The PRLRMP provides for mixture of desired successional forest conditions as indicated by Table 3-43 in the DEIS. This table indicates that in 10 and 50 years Alternative I will have about 90% of the forested acreage in mid- and late-successional forest conditions. Stands with full canopy closure for extended periods of time will be readily abundant for subject medicinal plant growth under the preferred alternative while balancing the diverse public interests and needs.

Several comments indicated that in the current economy there is a surplus of wood supplies from Canada and other places. There is plenty of private timber to be harvested, instead of using our National Forest for logging. The Southern Forest Resource Assessment (page 310 & 311) references RPA (Resources Planning Assessment) supply and demand projections indicating that world timber production is expected to rise steadily well into the 21st century. Domestic consumption of softwoods is projected to increase in the base projection by 47% and hardwoods by 29% between 1996 and 2050, while harvests are projected to increase by 30% of softwood and 17% for hardwoods. Therefore, the United States will increase its dependence on foreign sources of wood fiber (logs, lumber, panels, residues, pulp, waste paper, etc.). The projection shows imports providing 27% of wood fiber consumed in 2050, compared to 20% in 2,000. This increased dependency upon foreign production may have considerable environment effects elsewhere as production is pushed to countries with less stringent environmental standards. Between the Draft and Final EIS in response to comments, management prescription 10B (High Quality Forest Products) was added to 16,200 acres in Alternative I to ensure stabilized level of timber outputs.

Furthermore, the Southern Forest Resource Assessment (page 311) indicates that area projections show the South losing private timberland to other uses over the coming decades. Figure 13.23 on page 316 provides sub regional Timber Supply Model projections of hardwood timber in the South. Hardwood harvests from private land are projected to change unevenly across the South. Figure 13.24 on page 318 displays some of the changes while Figure 13.27(M) on page 321 displays the situation for Virginia. Although the JNF isn't a dominant player in the local market area, we have an opportunity to contribute to the local economies in a positive way. Per Table 3-178 in the DEIS, the percentage of JNF current timber demand provided

for varies from 6% to 74% for the seven alternatives developed in detail. Alternative I only provides 32% of current annual demand. It follows that, the primary use of timber harvesting in the revised Forest Plan is a tool for vegetative management to maintain/restore wildlife habitat and enhance forest health to meet the desired forest conditions for the assigned management prescriptions while providing an economic impact to the local economies.

We are charged with the responsibility of managing all the multiple uses and resources of the Forest including scenery, timber, minerals, water, forage, wildlife, etc. The Forest Service uses a highly respected and proven Scenery Management System with its most recent 1995 publication, USDA Forest Service Agriculture Handbook 701, Landscape Aesthetics-A Handbook for Scenery Management, as guidance. As noted in the PRLRMP, Goals 24 and 25 on page 2-43, we will "Protect and enhance the scenic and aesthetic values of the National Forest lands…and…. Provide a variety of Landscape Character themes."

Management prescriptions are allocated to different areas in order to achieve management objectives for multiple uses and resources. Some comments implied that we must choose between management for recreation and commercial timber harvest. These two objectives are not mutually exclusive and can often complement one another. Timber management on the JNF over the past 40 years has helped improve access and habitat for hunting and laid the foundation for many hiking, biking, horseback riding, and off-highway vehicle trails. The levels of timber harvest and standards of harvest operations have maintained the high quality of the visual resource on the Forest that is important to recreation and tourism. Recreation use on the Forest has continued to increase. Where Dispersed Recreation emphasis areas have been assigned a management prescription that is suitable for timber management, timber management is compatible with the recreation management objectives of these areas

The Record of Decision identifies the alternative that maximizes net public benefits. A component of determining net public benefits is the Present Net Value (PNV), which is used to measure the economic efficiency of each alternative. A comparison of each alternatives' PNV, is shown in Table 3-227 of the FEIS. As shown in the table, Alternatives A, E, and D have the highest PNV respectively. PNV includes market and non-market values which can be assigned a price, either based on money the Forest Service actually receives for market goods like timber and minerals, or on estimated values from Forest Service research for non-market amenities like wildlife and recreation. Table 3-223 in the DEIS displays the labor and income by alternative for each resource program. All alternatives except E & G contribute considerable economic impacts from the timber program.

Although the timber and minerals resources contained within the Jefferson National Forest are important to our economy, net public benefits implies much more than economic benefits. Scenery, solitude, clean water, viable populations of wildlife and fish, protection of rare species, recreation, wilderness--all twenty siginficant issues--must all be considered, weighed, and balanced when determining net public benefits. We do not see protection of forest resources and production of raw materials as mutually exclusive. All of the standards in the RLRMP were carefully crafted to produce these materials with the least environmental and social impacts as possible.

Timber harvest and recreation benefits are not mutually exclusive, given that a *maximum* of only 0.2% of the total JNF is allowed to be harvested per year. The RLRMP is the result of extraordinary public involvement resulting in some management prescriptions where recreation is emphasized, some where various types of wildlife habitat is emphasized, and a few where production of high quality wood products is emphasized, however all management prescriptions provide

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multiple uses. The primary theme of Alternative A is providing benefits to local communities and economies, through tourism, hunting opportunities, recreation, and commodity extraction. Impacts to the local economy are estimated for each alternative and displayed in the EIS to provide one of the many perspectives for the decision-maker to consider.

As noted in several comments, Forest Service timber sale contracts are carefully prepared, awarded, and administered as required by law, regulation, and policy. Forest Service Contracting Officers limit award of timber sale contracts to those purchasers with an affirmative determination of purchaser responsibility. Members of the Forest Service Sale Administration Team make routine timber sale inspections at a frequency necessary to obtain satisfactory contract compliance from the purchaser while meeting the immediate needs of the sale. Preparation and administration of National Forest timber sale contracts can, and has been, used as a model for ecologically-sensitive management of forest lands in other ownerships across the world.

**777. The Forest Service should prohibit timber harvest and other activities that might harm protected migratory birds during breeding season**

**Because to do otherwise would be illegal**

Requirements of the Migratory Bird Treaty Act and Executive Order 13186 have been met through coordination with the Migratory Bird Office of the U.S. Fish and Wildlife Service during the planning process. The PRLRMP proposes a comprehensive monitoring and evaluation plan that monitors the effects of activities across the Forest and is found in Appendix G.

**778. The Forest Service should ensure that the continuous inventory of stand conditions data is valid**

The Continuous Inventory of Stand Conditions (CISC) database is the primary source of tree inventory information maintained by National Forests within Region 8. This inventory is very dynamic and constantly updated as each compartment is routinely examined in its turn; hence the word Continuous. Thus, CISC reflects the most recent inventory of stand conditions at any given time because it is constantly updated. For the Jefferson National Forest (JNF), Appendix B states that mapping of management prescriptions was based on the CISC data as of 1999 and that identification of Spectrum Analysis Areas utilized the CISC data as of 2002 (Appendix B, pg. 3-30). These dates indicate that the Forest Plan Revision analysis utilized the best, most current data available.

**779. The Forest Service should better reflect natural processes, operability standards, and budget constraints in Appendix F analyses.**

The suitable acres, sale program, and silvicultural selections shown in RLRMP Appendix F are estimates of the actions or activities needed to meet the desired conditions established in the RLRMP.

**780. The Forest Service should limit timber harvest to small diameter trees.**

The commenter did not specify maximum size for small diameter trees, but commenter mentioned logging should be kept out of old growth and logging should be limited to very small diameter trees. The Old Growth Strategy is contained in Plan Appendix D. Old growth management prescriptions (6A, 6B, & 6C) on pages 3-71 thru 3-82 contain direction for old growth prescriptions. All current inventoried old growth has been assigned management prescriptions 6A, 6B, & 6C. No timber harvesting is allowed in 6A. Prescription 6B and 6C are classified as lands unsuitable for timber production with provision for limited cutting for very specific reasons. Newly discovered old growth patches will be evaluated per direction on pages D-3 and D-4 of Plan Appendix D. On lands suitable for timber production trees will be harvested to meet the desired future condition per prescription

emphasis and standards to meet various objectives with no limit on individual trees size.

**781. The Forest Service should not conduct commercial timber programs with monoculture stands.**
To provide biological diversity

There is no intent to rely on site conversions to monoculture stands in the PRLRMP or DEIS. Standard FW-69 on page 2-21 of the PRLRMP directs regeneration activities to regenerate to native tree species that commonly occur naturally on similar sites

**782. The Forest Service should conduct timber management to produce a desired forest condition rather than harvesting timber merely for profit.**
And list some suitable prescriptions as unsuitable for timber harvest.

The primary use of timber harvesting in the revised Forest Plan is to maintain/ restore wildlife habitat and enhance forest health to meet the desired forest conditions for the assigned management prescription. Because this Forest Plan is focused on achieving ecological, biological, and aesthetic desired conditions, lands suitable for timber production are focused on those areas where a sustainable timber harvest program is a cost-efficient method of achieving these desired conditions and multiple-use objectives. 16,200 acres of management prescription 10B have been added to the Final RLRMP where timber harvesting is focused on producing high quality hardwood sawtimber.

Commenter believes the designation of lands suitable for timber harvesting should be used only when there is a clear need under the desired condition in the prescription for a regular, predictable, periodic creation of early successional habitat for which the management tools that been created for timber management can be reasonable adapted. Lands were designated suitable for timber production where creation of early successional habitat on a regular basis was anticipated. In additional land suitable for timber production was allocated to the 7E2 prescription (Dispersed Recreation with vegetative management) to create conditions suitable for wildlife habitat and desired vegetative cover where hunting and watchable wildlife are emphasized, as well as, providing for public health & safety. See also Response #790.

**783. The Forest Service should substitute alternative methods such as prescribed burning for logging.**
To maintain desired community types

Seven alternative ways of addressing this significant issue were developed in detail in the DEIS. Maximum annual acreage of prescribed burning ranges from a low of 2,900 acres to maximum of 19,300 acres. Alternative I expands the level of annual prescribed burning to 15,000 per year. In recent years, the JNF has averaged about 2,900 acres of prescribed burning per year. The expanding role of prescribed burning as a tool to accomplish vegetative management goals does have its limitations. Consideration has to be given to air quality effects of this practice, urban interface challenges, as well as, annual operational limitations. Furthermore, prescribe burning effectiveness in the hardwood forest community types common to the JNF is limited to understory and midstory treatments; whereas, timber harvesting has the ability to effectively treat the main crown canopy to accomplish certain vegetative goals. Therefore, each tool has its appropriate application with some opportunity for substitution to accomplish the management prescription's desired future condition.

**784. The Forest Service should clarify the meaning of a "low intensity" timber harvest.**
The meaning of "low intensity" timber harvesting has been clarified whenever it appeared in the PRLRMP.

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## SUITABILITY

**785. The Forest Service should specify the percentage of National Forest System lands available for timber harvest.**

Table 3-170 on page 3-293 of the DEIS displays percentage of total forest acreage that is suitable for timber production. Alternative I has a suitable land base of about 255,000 acres or 35% of the total forest acreage. Alternative I has an estimated harvest of 0.6 MMBF annually from the unsuitable land base or approximately 110 acres annually on lands allocated to management prescription that permit timber harvesting for very restrictive reasons. Under Alterative I prescription allocations, an estimated 62% of the forest acreage could be considered for timber harvest.

**786. The Forest Service should provide documentation of any ecological forest community principle supporting the proposition to perform "planned periodic harvest."**

Please refer to page 107 "Ecological Relationships," page 122 "Regeneration As An Ecological Process," and page 302 "Summary of Ecological and Silvicultural Relationships" contained in Ecology and Management of Central Hardwood Forests, Ray R. Hicks, 1998, 98-6286. Also refer to page 191 "Ecology of Regeneration" contained in The Practice of Silviculture, David M. Smith, 1986, 85-26410.

**787. The Forest Service should address how the decrease in the suitable land base for timber harvest will affect the ability of the agency to accomplish the forest plan objectives.**

**788. The Forest Service should reduce the amount of land classified as suitable for timber production.**

**789. The Forest Service should reduce the volume of forest designated as "suitable" for timber production, and the annual timber harvest.**

**To levels at or below that quantity currently being harvested**

**To levels significantly lower than current cutting**

**Because of the environmental effects**

**For multiple reasons**

The terminology "suitable for timber production" comes directly form 36 CFR 219.14. These regulations set forth the process for developing and revising land and resource plans as required by the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) as amended. Plan Appendix F describes the analysis of lands suitable and not suitable for timber production, the Allowable Sale Quantity (ASQ), total Timber Sale Program, and describes condition where different silvicultural systems could be used. Tables 3-170 and 3-171 on page 3-293 of the DEIS, displays Timber Land Suitability and Allowable Sale Quantity (ASQ) by alternative. Seven alternatives were developed in detail with various management emphases with varying levels of suitable land and resultant ASQ. In the Record of Decision for the DEIS, the Regional Forester will document the rational for the decision of which alternative will serve as the Revised Plan.

**790. The Forest Service should reclassify certain specific areas as unsuitable for timber productions.**

The terminology "suitable for timber production" comes directly form 36 CFR 219.14. These regulations set forth the process for developing and revising land and resource plans as required by the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) as amended. RLRMP Appendix F describes the analysis of lands suitable and not suitable for timber production, the Allowable Sale Quantity (ASQ), total Timber Sale Program, and describes condition where different silvicultural systems could be used. Tables 3-170 and 3-171 on page 3-293 of the DEIS, displays Timber Land Suitability and Allowable Sale Quantity (ASQ) by alternative. Seven alternatives were developed in detail with various management emphases with varying levels of suitable land and resultant ASQ. In the Record of

Decision for the DEIS, the Regional Forester will document the rational for the decision of which alternative will serve as the Revised Plan. See also ch7-066.

**791. The Forest Service should correct the discrepancy between the map and description for North Creek 4.k area suitability.**

The map displaying suitability for timber production in the North Creek area was in error in the DEIS and PRLRMP. This map has been corrected.

**792. The Forest Service should explain why camping is prohibited within 300 feet of North Creek and North Creek Road but areas within 1,000 ft. of N. Cr. Rd. and 2,000 ft. of Middle Cr. Rd. are "suitable" for logging.**

This wording was incorrect. It has been changed and a map of the North Creek Special Area has been added for clarification.

**793. The Forest Service should allow timber management in Management Area 6.E., Iron Mountain.**

Alternative I contains land allocated to management prescriptions 7B, 7E2, 8A1, 8E1 & 9H containing a suitable land base for timber production where scheduled timber harvesting will occur in the context of meeting desired conditions with recreation and wildlife emphasis.

## ALLOWABLE SALE QUANTITY

**794. The Forest Service should increase harvests as demand increases.**

As displayed in Table 3-178 on page 3-296 of the DEIS, none of the seven alternatives studied in detail meet the current timber demand. Alternative D meets the highest percent of timber demand with 74%, whereas, Alternative I meets 32% of current timber demand. The Allowable Sale Quantity shown in Table 3-171 for each alternative is the quantity of timber that may be sold from the suitable land base for the first 10 years of plan implementation. Increasing the ASQ for the selected alternative would require a Plan amendment or revision.

FSM 2430 states some of the objectives for commercial timber sales are 1) provide an orderly program in a cost-effective manner in accordance with the Forest Plan 2) offer for sale the ASQ, subject to financing levels, 3) provide a continuous flow of raw material to local timber industries. When implementing these objectives in the context of a Forest-level timber sale program, it is more cost-effective to implement a commercial timber sale program on an even flow basis rather than adjusting to yearly fluctuations in timber prices or demand due to the considerable length of time required for a project to proceed from initiation of environmental analysis to sale advertisement. In addition, annual timber sale budgets at the Forest-level normally do not have more than a +/- 5% fluctuation in appropriated dollars. In any event, the Forest Service does monitor markets and attempts to market sales that mesh with local demands but designed wide ranging fluctuations in annual quantity offered is not anticipated due to budget and operational limitations.

**795. The Forest Service should implement an alternative that yields larger timber harvest quantities.**

**To promote economic development, and benefit wildlife and hunting**

Page 3-294 of the DEIS displays the annual Timber Sale Program Quantity for the seven alternatives studied in detail. Outputs range from an annual quantity of 3.8 MMBF (Alternative G) to 50.2 MMBF (Alternative D). Alternative A has an annual quantity of 27.8 MMBF. The preferred Alternative I has an annual quantity of 21.8 MMBF. Table 3-227 in the DEIS displays Cumulative Total Present Net Value by Alternative. Alternative A has the highest value followed by Alternative E, by Alternative D, then Alternative I. The range from highest to lowest is only 13%. In the Record of Decision for the DEIS, the Regional Forester will document the rational for

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the decision of which alternative will serve as the Revised Plan.

**796. The Forest Service should clarify the level of timber harvest allowed by the forest plan.**
Alternative I (the preferred alternative in the DEIS) has an allowable sale quantity for the first 10 years of plan implementation of 212 million board feet. An additional 6 million board feet of harvest on the unsuitable land base is estimated for the first 10 years of plan implementation.

**797. The Forest Service should explain in the EIS why timber harvest volume has been below the allowable sale quantity.**
To assert the importance of national forest timber to local economies

Rather than making changes in the EIS, the following is an explanation why timber harvest volume has been below the ASQ. Table 3-163 in the DEIS displays harvested volume from 1987 to 2001. For the past 5 years the JNF has had an annual average harvest of about 9 MMBF per year. The current ASQ for the JNF is 33.8 MMBF. The decline in timber harvest began in 1995 as the average JNF harvest for the past 10 years was about 15 MMBF. FY 1991 was the high year under the current plan with 32.5 MMBF. The harvest decline since FY 1995 is due to the lower annual timber offer on the JNF due to consolidation of the two Virginia National Forests with relocation of timber personnel to accommodate reduced budgets. Focus on GWNF gypsy moth salvage has reduced some of the potential green sales on the JNF. In addition, expanded environmental analysis requirements and documentation, level of timber appeals, and litigation have had considerable impacts on the annual offer. In recent years, JNF/GWNF fire suppression and support of Western wildlife suppression has impacted the Forests ability to sustain an orderly timber program of work during a considerable portion of each year. However, it is apparent that the Forests will meet 100% of its assigned timber offer target in FY 2003.

Sale offerings during the past five years have focused on marketing of available medium and higher value sales to enable the timber program to become more cost effective. Sales have been designed in such a way that competitive interest from the local timber markets will yield very competitive bids.

**798. The Forest Service should increase the annual timber harvest volume.**
To balance age classes and tree sizes and promote future forest health

To prevent stagnation and decline

To fulfill the forest's share of demand, while excluding firewood harvests

To provide greater access and opportunities for recreation

Table 3-174 on page 3-294 of the DEIS displays the Annual Timber Sale Program Quantity for the seven alternatives studied in detail. Outputs range from an annual quantity of 3.8 MMBF (Alternative G) to 50.2 MMBF (Alternative D). Alternative A has an annual quantity of 27.8 MMBF. Alternative I has an annual quantity of 21.8 MMBF. Table 3-177 on page 3-295 displays the annual net present value for the timber program with Alternative D being the highest whereas Table 3-227 displays the cumulative decadal present net value for all of the resources with Alternative A being the highest. Although Alternative I is ranked 4th in cumulative present net value the difference between A and I is only 8.7 percent. The RLRMP tries to balance the needs for all resources at levels that address public needs and conforms with public laws. In the Record of Decision for the DEIS, the Regional Forester will document the rational for the decision of which alternative will serve as the Revised Plan.

As Table 3-11 in the DEIS indicates Alternative D would create the highest amount of early-successional habitat in the first 10 years of plan implementation followed

by Alternatives F, A, I, B, E, and G in descending order. As a point of reference, Alternative I would have 2.5% of the total forested acres in early-successional habitat at the end of the first 10 years of implementation, and Alternative D would created approximately twice that amount. It appears that Alternative D would more nearly meet your request. In the Record of Decision for the DEIS, the Regional Forester will document the rational for the decision of which alternative will serve as the Revised Plan.

The Forest Health analysis in the DEIS discloses the positive impact that timber harvesting can have on various insects and diseases (pgs 3-202 to 3-214). Forest wide standards FW-77 and 82 (page 2-22 of the PRLRMP specify the use of Integrated Pest Management in combating the gypsy moth and southern pine beetle, which includes the use of cultural treatments to reduce risk. Specific standards specifying the use of cultural treatments to reduce the occurrence of insects and diseases in general are found throughout Chapter 3 of the PRLRMP. For example, Standard 8A1-008 states "The forest health strategy is to minimize the occurrence of pest problems by managing host-type conditions. Suppression of pests, both exotic and native, is accomplished with all available integrated pest management tools." Several alternatives that would result in a higher annual timber harvest volume (Alternatives A, B, D, and F) as compared to Alternative I were examined and the impacts to Forest Health were disclosed on pages 3-202 through 3-214 of the DEIS. Alternative D strives to achieve a balanced age class distribution.

The allowable sale quantity includes those yield projections on suitable lands for timber production. Fuelwood harvest was a projected yield and is therefore included within the calculated ASQ.

The commenter indicates that a more active timber sale program would provide more opportunities for hunting, bird/wildlife observation, horse-back riding, mountain biking and other recreation activities from the addition access provided. Table 3-204 of the DEIS indicates the largest potential increases in road mileage over the Plan period in areas of Minerals and Timber. Alternative D is generally the least restrictive for road construction which produces the highest amount of timber in terms of quantity. Also, Alternative D has the least amount of land with no increase in open road density. It appears that D would meet your request as Alternative D has the largest allocation of management 10 prescriptions which do not have open road density constraints. Whereas, Alternative I has the largest amount of management prescriptions which do have open road density constraints. However, it is likely that many of the roads constructed in Alternative D would be local D levels roads that would not be open to the public following the timber sale activity. In the Record of Decision for the DEIS, the Regional Forester will document the rational for the decision of which alternative will serve as the Revised Plan.

**799. The Forest Service should lower the allowable sale quantity of timber.**
**To below the amount of timber currently being harvested**

Table 3-171 on page 3-293 of the DEIS displays the ASQs for the seven alternatives studied in detail. The current ASQ for the JNF is 33.8 MMBF. During the last 5 years, the JNF has average approximately 9 MMBF of timber harvest annually. During the past 10 years, the JNF has averaged an annual timber harvest of 15 MMBF. As indicated by Table 3-171, only Alternative D has a higher ASQ than the current ASQ. Alternative F, A, B, I, E, and G have ASQs below current ASQ with 27.2, 26.5, 23.3, 21.2, 5.5, and 3.4 MMBF, respectively. In the Record of Decision for the DEIS, the Regional Forester will document the rational for the decision of which alternative will serve as the Revised Plan.

Table 3-171 on page 3-293 of the DEIS displays the ASQs for the seven alternatives

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studied in detail. During the last 5 years, the JNF has average approximately 9 MMBF of timber harvest annually. During the past 10 years, the JNF has averaged an annual timber harvest of 15 MMBF. As indicated by Table 3-171, Alternative E and Alternative G have an ASQ below current harvest levels with an ASQ of 5.5 MMBF and 3.4 MMBF, respectively. In the Record of Decision for the DEIS, the Regional Forester will document the rational for the decision of which alternative will serve as the Revised Plan.

**800. The Forest Service should specify that salvage harvest on unsuitable lands will not count toward the allowable sale quantity.**

**801. The Forest Service should allow salvage timber harvest without counting toward the allowable sale quantity**

Per FSH 2409.13, the allowable sale quantity includes only those volumes used in the yield projection calculations of the sale schedule for suitable lands for timber production. Since salvage sales were an anticipate yield, the volumes have been included in the ASQ. Therefore, salvage sales on suitable lands for timber production will count toward the ASQ. Conversely, salvage sales on unsuitable land would not count toward the ASQ.

**802. The Forest Service should eliminate the use of allowable sale quantity as a measurement.**

Because the measure is archaic

**803. The Forest Service should recognize that the arbitrary allowable sale quantity listings reveal the agency's bias for timber harvest.**

Section 13 of the National Forest Management Act of 1976 says in part, "The Secretary of Agriculture shall limit the sale of timber from each national forest to a quantity equal to or less than a quantity which can be removed from such forest annually in perpetuity on a sustained-yield basis..." The Allowable Sale Quantity (ASQ) is a planning requirement of the September 30, 1982 National Forest System Land and Resource Planning Regulations for implementing the NFMA and designed to set the limit for the sale of timber specified in the NFMA. The December 2002 Proposed Planning Regulations do eliminate the ASQ requirement, and use, instead, long-term sustained yield as the upper limit of timber that may be harvested from suitable land (on a sustained yield basis), consistent with achievement of objectives or desired conditions in the applicable plan, however the Jefferson RLRMP properly follows the 1982 Regulations.

**804. The Forest Service should describe the effects of different alternatives on the sustained yield of timber.**

Table 3-173 on page 3-293 of the DEIS displays the Long-Term Sustained Yield Capacity by Alternative in MMCF per year. Alternative D is the highest with 12.1 MMCF followed by Alternative A with 7.3 MMCF followed by Alternative B with 6.2 MMCF followed by Alterative I with 5.8 MMCF and Alternative F with 5.0 MMCF.

### TIMBER COSTS

**805. The Forest Service should conduct analysis of economic and staff considerations and provide for stewardship contracts.**

Commenter indicates that Forest Service lacks necessary personnel to manage timber sales to meet plan objectives. Also, there is no mapping of 15-20,000 acre areas where stewardship management can be conducted for period of at least 10 years by private parties. The Forest Plan provides the basis for developing multi-year program budget proposals. The budget is used for requesting and allocating the funds needed to carry out the planned management direction. Cost and accomplishment data will be utilized to update, revise and modify budget proposals. Adequate funding will be requested to implement the selected alternative to ensure necessary personnel are available to manage the timber sale program. Stewardship contracting, which Congress recently authorized in appropriations legislation, is

intended to achieve key land-management goals. Stewardship contracting is simply another tool for carrying out land management activities. It does not serve as a replacement for the timber sale program or waive environmental laws. Site-specific projects will be developed through the site-specific planning process following community collaboration. Implementation of stewardship contracts will be considered when appropriate within the context of individual projects or multiple projects rather than at the Plan level.

**806. The Forest Service should require the timber industry to pay fair market value for all timber and roads.**

**807. The Forest Service should require commercial timber companies to pay for all costs to support timber harvest and correct environmental effects.**

Timber sales are appraised and advertised at fair market value according to 36 CFR 223.60. Sales are awarded competitively from sealed bids to the highest bidder, most often significantly above the advertised price.

**808. The Forest Service should not use helicopters for timber harvest.**

**Because helicopter harvesting is too wasteful**

Commenter is concerned about the current practice of limiting helicopter logging to harvesting of high value sawtimber only and not yarding pulpwood. The selection of harvesting system is a site-specific decision that is made at the project level. Helicopter yarding has proven to be a very viable tool in certain situations and will be considered along with the other harvesting systems when appropriate to meet plan standards when doing site specific project analysis.

## ROTATION AGE

**809. The Forest Service should harvest timber every 80 to 100 years on a rotating basis.**

Standard FW-111 in the PRLRMP specifies that rotation ages for various forest working groups are specified under the management prescriptions that are suitable for timber production. The length of the rotation is determined by many factors including the silvicultural characteristics of the species (i.e. long lived versus short lived) as well as the desired condition for that management prescription. Rotation ages of 80 to 100 years are very common and specified for a variety of working groups throughout the suitable management prescriptions. Please refer to Chapter 3 of the PRLRMP.

**810. The Forest Service should harvest upland and cove hardwood timber every 150 to 200 years on a rotating basis.**

Standard FW-111 in the PRLRMP specifies that rotation ages for various forest working groups are specified under the management prescriptions that are suitable for timber production. The length of the rotation is determined by many factors including the silvicultural characteristics of the species (i.e. long lived versus short lived) as well as the desired condition for that management prescription. The desired condition identified for a majority of the management prescriptions can be achieved within rotation ages younger than 150 years. Indeed, the desired conditions of some management prescriptions would be difficult to achieve with the longer rotations suggested (see management prescriptions 8B, 8E1, and 8E6). On the other hand, many management prescriptions do specify longer rotations, in the range of 120 to 180 years, which falls into the range suggested by this comment (see Management Prescriptions 4J, 7B, 7F, and 9A1).

**811. The Forest Service should revise specific standards to allow proper timber management practices.**

Desired rotation ages for various forested communities are identified for each management prescription containing lands suitable for timber production. These rotation ages were formulated based on a combination of the silvicultural

characteristics of the vegetation (e.g. consideration of the lifespan of species within a given community type) and the overall multiple use goals, objectives, and desired condition identified for that management prescription. However, existing age class distributions are quite unbalanced with the majority of the Jefferson National Forest between 70 and 100 years of age and very little younger age classes being represented. Goals, objectives, and desired conditions related to wildlife habitat, forest health, and age class distribution of various forest communities relate to restoring a more natural age class distribution in some areas of the Forest. Until this is accomplished, some stands may necessarily be cut prior to or after the desired rotation age. Rotation age is not applicable until the second cutting cycle when the forest is presumed to be "regulated." In some cases in order to achieve a desired condition in a given management prescription for younger age classes (e.g. Management Prescription 8B where a minimum of 10% of forested acres in early successional habitat is specified), some forested stands may need to be harvested prior to the specified rotation age to achieve that multiple use objective. This is an appropriate silvicultural practice given that silviculture achieves a specified goal that may be related to a use other than timber management, for example a wildlife related use.

## SILVICULTURE

**812. The Forest Service should use no site conversions.**
There is no intent to rely on site conversions to monoculture stands in the PRLRMP or DEIS. Standard FW-69 on page 2-21 of the PRLRMP directs regeneration activities to regenerate to native tree species that commonly occur naturally on similar sites.

### Even-aged Management and Clearcutting

**813. The Forest Service should not conduct clearcut timber harvest.**
**814. The Forest Service should not clearcut National Forest System lands.**
**Because clearcuts causes coppice growth**

**815. The Forest Service should not regenerate coppice oak growth.**
**Because coppice oak is of no use**

**816. The Forest Service should not use clearcuts in oak forests.**
**Because it will create coppice growth and promote forest decline**

**817. The Forest Service should not use clearcut and even-aged management methods.**
**Because forests have been historically composed of canopies of various ages with different canopy mixes**

The discussion of successional forest habitats, including early successional habitats and their benefit to wildlife, is found on pages 3-97 to 3-103 of the DEIS. Early successional habitat is important to some forms of wildlife (pg. 3-98) and is a concern for some species viability (Table 3-92, DEIS). Insofar as clearcutting creates quality early successional habitat, clearcutting can indeed achieve wildlife habitat objectives.

A vast majority of the existing forest, especially the upland oak forests, originated from clearcutting and coppice sprouting. While some forest types were historically of a mixed canopy and age structure (the gap phase model of regeneration), other forest types in the Southern Appalachians were historically of an even-aged structure (page 3-99, DEIS). There is nothing inherently wrong with a properly managed coppice sprout origin stand. Indeed, sprouting can be the most reliable method of regenerating and perpetuating some species of vegetation; an example is northern red oak on a relatively high site in direct competition with yellow poplar. Appendix F of the PRLRMP describes those forest types where even-aged

management is recommended or not.

**818. The Forest Service should evaluate the effects of clearcutting.**
The National Forest Management Act requires a finding of optimality for clearcutting at the site-specific planning level. The analysis of the effects of clearcutting in support of such a finding is more appropriate at the site-specific level, not at the PRLRMP level. The EIS does, however, discuss the broader effects of timber harvesting at the forest planning scale, including clearcutting, in Chapter 3 by potentially affected resource.

**819. The Forest Service should analyze and specify the use of even-aged management techniques for oak regeneration.**
Tables F-7 through F-9 in Appendix F of the PRLRMP describe those forested community types where even-aged management is not recommended, recommended, or possible and the reasons for such conclusions are presented. Several even-aged systems including clearcut, seed tree, and shelterwood treatments are recommended for the 4 various community types where oak is found (Table F-8). The analysis on pages 3-48 through 3-55 of the DEIS recognizes the role of even-aged management in perpetuating oak regeneration, but focuses on intermediate stand treatments such as thinning and prescribed fire because recent research has shown that canopy removal and increased light levels is not the only factor to consider when regenerating oaks. “Treatments such as shelterwood harvest combined with prescribed burning (Brose at al. 1999) or basal area reduction from below using herbicides (Loftis 1991) have been shown to create conditions that promote adequate oak regeneration.” (DEIS, page 3-49) The oak saplings must be present and at least 4.5 feet tall before complete canopy removal to ensure a large percentage of oak in the regenerated stand; some forms of thinning and prescribed fire accomplish this. However, we do recognize the role that even-aged management does play in canopy removal once those oak saplings are present and the analysis has been supplemented in the FEIS to reflect this.

Uneven-aged Management

**820. The Forest Service should include provisions for individual tree selection logging.**
**And should explain why natural successional processes are not desirable and why prescribed burning would not create desired conditions**

**Because it would result in the conditions the agency expects to create**

Tables F-11 through F-13 in Appendix F of the PRLRMP describe those forested community types where single tree selection is not recommended, or possible, and the reasons for these conclusions are described. In most cases the Desired Condition is to perpetuate the existing vegetation and individual tree selection would not achieve this condition in several community types. As for the use of prescribed fire, it alone may or may not achieve the Desired Condition depending upon what that condition is. For instance, in the case of mixed mesophytic forests, Standards FW-145 and 146 (PRLRMP) discourage the use of fire in this community type because this community type is fire intolerant and does not regenerate well in the presence of frequent fires (DEIS pg. 3-217). Furthermore, Standard FW-144 (PRLRMP) restricts the severity of a prescribed fire, thereby limiting the ability of such a fire to kill enough trees to benefit shade intolerant, or even moderately tolerant, tree species. The canopy would not be opened up enough. From this discussion, it should be apparent that although prescribed fire is a useful tool in achieving some objectives, it cannot alone achieve all objectives.

**821. The Forest Service should consider horse-based uneven aged timber harvest.**
Tables F-11 through F-13 in Appendix F of the PRLRMP describe those forested community types where uneven-aged management is not recommended or possible

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and the reasons for these conclusions are described. In most cases the Desired Condition is to perpetuate the existing vegetation and uneven aged management would not achieve this condition in several community types. Horse logging is an appropriate harvesting system in limited situations; there is nothing in the PRLRMP that prevents the use of horse logging other than Standard FW-110 which specifies the use of advanced logging systems on steep slopes

**822. The Forest Service should conduct harvest in a manner that minimizes forest / open edge.**
Because the forest supports interior forest species

The DEIS discloses the impacts of the alternatives on edge and interior forest habitats on pages 3-109 through 3-114. Table 3-50 (pg. 3-112, DEIS) discloses the percentage of older forested stands (indicator for interior forest) in management prescriptions with varying emphasis on the creation of early successional habitat. The potential for serious edge effects on interior forest habitats would be expected in older forests where relatively high amounts of early successional habitat are desired. Alternatives range from 1% to 40% of the acreage in older stands located in management prescriptions with a high emphasis on early successional habitat; Alternative I is the third lowest in ranking at 6%.

**823. The Forest Service should use group selection practices and retain non-oak species for seed regeneration.**
To produce greater forest diversity

**824. The Forest Service should use selective cutting.**
Because of environmental benefits and to retain desired trees, berries, and forage

Appendix F of the PRLRMP describes vegetation management practices that are appropriate for the maintenance or restoration of various forest community types. Paragraph 3 on page F-5 explains that different species of trees have unique ecological requirements (light levels, moisture levels, etc.). Differing silvicultural systems can be used to achieve these ecological conditions and, within limits, manipulate the vegetation to achieve desired conditions. The paragraph concludes "Therefore, uneven-aged, two-aged and even-aged silvicultural system's practices will not be applied individually to intersperse the silvicultural systems, but rather to portions of Management Prescriptions where they simultaneously contribute to accomplishing other renewable resource objectives and are appropriate for the desirable tree species to be regenerated or tended." Page F-5 also presents screening criteria that limit the use of uneven aged systems, such as group selection. The following pages (F-7 through F-14, PRLRMP), describe in detail what practices, including group selection and individual tree selection, are recommended or not recommended for various forest community types and why. A review of the tables found on these pages indicates that the use of group selection and/or individual tree selection practices across the forest would shift species composition to shade tolerant species and result in less diversity than the application of a variety of silvicultural treatments. Forest diversity will be increased through the use of a variety of silvicultural practices, not through the use of a single system.

Thinning

**825. The Forest Service should emphasize the thinning of dense forest stands near urban areas.**
Alternatives C, and to some extent, G would meet the intent of this comment. Page 2-5 of the DEIS indicates why Alternative C was dropped from detailed analysis. However, Alternatives A and I do provide an Urban/Suburban Interface (management prescription 4.J) which also meets the intent of this comment.

SALVAGE

**826. The Forest Service should conduct salvage timber harvest.**

For economic gain

**827. The Forest Service should allow salvage timber harvest.**

After catastrophic events

Salvage timber harvest is allowed in those areas allocated to management prescriptions permitting timber harvest and per assigned prescription direction for that particular area. As indicated by standards FW-108 and FW-109, size of openings allowed will be determined on a case-by-case basis during site-specific environmental analysis and there are no dispersion requirements for salvage treatment areas.

**828. The Forest Service should not provide additional acreage of trees for harvest as part of salvage harvest projects.**

And should adequately analyze the effects of salvage harvest

FSM 2435.05 defines salvage as the removal of dead trees or trees damaged or dying because of injurious agents other than competition, to recover economic value that would otherwise be lost. When the amount of dead, dying, or damaged timber in a stand is great enough to require removal of non-salvage trees in the stand to meet a stated stand regeneration or insect suppression objectives, removal of such trees may occur in conjunction with the salvage component. Salvage sales may also include an incidental amount of non-salvage for access and safety. Specific boundaries of salvage harvest are defined in site-specific environmental analysis on a case-by-case basis with stated purpose and need.

**829. The Forest Service should use caution when conducting salvage timber harvest.**

Because it does not necessarily reduce fire intensity

Because recently disturbed ecosystems are fragile

Because it is not economically viable

**830. The Forest Service should not use salvage timber harvest to reduce the risks of catastrophic fire.**

Because logging leaves the parts that most readily burn and will result in more fuel loading

One comment quotes research in the Pacific Northwest which is likely to be in Western conifer types, where as, predominate oak forest types occur on the JNF. Page 3-222 of the DEIS indicates that the JNF will use both prescribed fire and mechanical treatments to reduce fuel loading, and to break-up fuel continuity, both vertically and horizontally, to reduce rates of spread ant therefore fire size, intensity, and severity. It is anticipated that some salvage timber harvesting will serve this purpose following catastrophic events or during gypsy moth and southern pine beetle activity provided marketable timber values are present.

More stringent standards for salvage sales, through additional mitigation measures will be developed if needed during site-specific environmental analysis following consideration of environmental effects of proposed actions.

Regarding below cost salvage logging, there is no federal regulation that requires the Forest Service to receive a profit on a sale of timber. Financial efficiency is given consideration when doing the site-specific environmental analysis for timber sales. Alternatives that are practical and feasible from a biological, social, or legal standpoint are developed. For salvage sales, the analysis procedures focus on maximizing value, as well as being cost effective. Timber sales are appraised and advertised at fair market value according to 36 CFR 223.60. Sales are awarded competitively from sealed bids to the highest bidder, most often significantly above the advertised price.

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## FIREWOOD

**831. The Forest Service should not allow firewood collection.**

Personal use firewood collection under a forest products permit from National Forest land has been a traditional way for local residents to acquire a source of local fuel for home heating. National direction has particularly emphasized this program during periods of limited or high energy prices, and we anticipated a continue emphasis on this energy source in the near future due to raising natural gas prices. In recent years, 500 permits per year on the JNF have been issued for this activity. Normally, firewood permits are issued district-wide and are limited to dead or down trees unless a permit excludes an area from collection. We anticipate a continued surplus of available dead trees on National Forest to accommodate this local community need due to the amount of oak decline and gypsy moth activity. Extent of firewood collection is limited by available access and normally occurs within two tree heights of open system roads.

**832. The Forest Service should clarify policies on firewood cutting.**

**Particularly with respect to riparian areas, old growth, access, and disposition of slash**

Firewood cutting in is addressed in appropriate management prescriptions and has been revised in management prescription 11- Riparian corridors.

Commenter requested clarification of how firewood cutting will be taken into consideration in FW-12. For those riparian areas which have identified shortages of large woody debris, forest product permits will exclude firewood cutting authorization from those areas by description or by marking of the site.

## EFFECTS

**833. The Forest Service should adequately examine the effects of the timber harvest program.**

**Including indirect and aggregate effects**

Chapter 3 of the DEIS describes the environmental effects and consequences for the seven alternatives studied in detail. Each section begins with a description of the affected environment including physical, biological, social, and economic factors along with direct, indirect, and cumulative effects of the alternative. The chapter concludes by summarizing cumulative effects of the alternatives. The direct, indirect, and cumulative effects of the timber management program are discussed under the section heading for each resource potentially affected. In other words, the effects of timber harvest on soils are discussed under the soils section and the effects of timber harvest on wildlife are discussed under the wildlife section.

## TIMBER MANAGEMENT PRESCRIPTIONS

**834. The Forest Service should change prescriptions 10A, 10B, and 10E for wilderness study areas, special areas, and across ranger districts.**

**To provide balanced multiple use**

**To benefit wildlife and rural economies**

Thank you for expressing your views. All views were carefully considered during development and evaluation of the existing Alternatives. Different combinations of management prescriptions are used in different alternatives. There is an infinite combination of management prescriptions and therefore, Alternatives possible. Alternatives D and F have used the management prescriptions you mentioned more frequently than other alternatives. Alternative F does not recommend any additional wilderness study. The FEIS includes 7 Alternatives, each with different combinations of management prescriptions. We believe the range of 7 Alternatives analyzed in this FEIS provides for a reasonable number of examples covering the full spectrum

of options for addressing the significant issues, including commercial timber harvesting and wilderness recommendations.

**835. The Forest Service should change prescriptions to 10B for areas within the Arnold and Glenwood Ranger Districts.**

Thank you for your comment. This change was made in the final LRMP.

**836. The Forest Service should identify areas where the primary goal is high-quality timber production.**

**identify areas where the primary goal is high-quality timber production Because it is difficult to identify areas of potential timber harvest**

Suitable lands in management prescriptions 7E2, 8A1, 8C, 8E2, 8E4, 9A1 will produce some high quality sawtimber as a secondary output. These management prescriptions comprise 72% of the suitable land base in Alternative I. The percentage of higher quality sites varies within each of these prescription allocations and rotation lengths vary as well. Management prescription 10B (High Quality Forest Products) containing about 16,200 acres has been allocated in Alternative I to accommodate the primary goal of high-quality timber production on high quality sites. These areas are in located into two separate areas 1) Cove Creek 5,400 acres on the Clinch RD & 2) Arnold Valley 10,800 acres on the Glenwood RD. The 10B prescription allocation for the different alternatives developed in detail varies from a low of 1,900 acres (Alternative E) to 55,400 acres (Alternative A). Alternative I now has 16,200 acres of land allocated to the 10B prescription. In the Record of Decision for the DEIS, the Regional Forester will document the rational for the decision of which alternative will serve as the Revised Plan.

**837. The Forest Service should develop a timber management prescription that ensures that regular, high-level output will occur.**

Page 3-294 of the DEIS displays the annual Timber Sale Program Quantity for the seven alternatives studied in detail. Outputs range from an annual quantity of 3.8 MMBF (Alternative G) to 50.2 MMBF (Alternative D). The preferred Alternative I has an annual quantity of 21.8 MMBF. Although management prescriptions 7E1, 8A1, 8B, 8C, 8E2, 8E4, 9A1, and 9H provide for a low to moderate level of timber outputs to accommodate vegetative manipulation objectives, management prescription 10B has been allocated in the Final RLRMP for 16,200 acres in Alternative I to focus on production of high-quality sawtimber to ensure a more stabilized level of outputs. In the Record of Decision for the FEIS, the Regional Forester will document the rational for the decision of which alternative will serve as the Revised Plan.

**838. The Forest Service should develop alternatives and management prescriptions that emphasize timber management.**

**Because timber harvesting provides jobs, wildlife management, recreation, forest products, and promotes forest health**

A variety of timber harvesting methods would be employed in each alternative to create early successional habitat to benefit wildlife. Tables 3-166 and 3-167 display the acres and methods through timber harvesting. A full range of activities was consideration in the seven alternatives developed in detail. Alternative I provides for the creation of 15,685 acres of early successional habitat by timber harvesting in the first 10 year implementation period. The majority of this activity is in wildlife management emphasis prescriptions. Management prescription 10B (High Quality Forest Products) has been added to 16,200 acres in Alternative I to ensure stabilized level of timber outputs. In the Record of Decision for the DEIS, the Regional Forester will document the rational for the decision of which alternative will serve as the Revised Plan. See also Response #837.

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## SPECTRUM MODEL

**839. The Forest Service should clarify the meaning of the SPECTRUM linear programming solution.**
The SPECTRUM model is comprised of analysis units (areas of land) and different silvicultural management options are available to each analysis unit, including the option of "doing nothing". These silvicultural options include different combinations of thinnings, final harvest methods (e.g., clearcutting, shelterwoods, group selection), and different rotation ages. These different options comprise the "decision variables" in the model. Lands can have a negative NPV and still be part of the suited land base depending on the resource management objective of the management prescription allocated to that particular area of land. SPECTRUM actually uses a linear program software program called C-WHIZ, which in turn uses the Simplex method. Appendix B of the EIS has been updated to answer your questions where appropriate. Other questions are answered in our process records.

**840. The Forest Service should explain the usefulness of spectrum analysis for modeling timber changes when timber management prescriptions are excluded from the plan.**
Many of the management prescriptions are still suitable for timber harvest in order to achieve non-timber resource management objectives. One of these objectives is the creation of early succession habitat. Spectrum is an ideal model for determining the optimal timber harvesting scheme for obtaining early successional habitat objectives. The model can incorporate a multitude of non-timber resource objectives related to forest community type, age, rotation age, methods of harvest, economics, site productivity, visuals, and recreation as they relate to timber harvesting.

## FIRE MANAGEMENT

**841. The Forest Service should reintroduce fire as a management tool.**
**As a small part of an overall management program**

**Instead of more invasive mechanical treatments**

Prescribed fire is currently being utilized as a management tool. Mechanical fuels treatments are being completed on a limited basis averaging less than one project per year due to the high cost per acre and relatively small number of acres that may be accomplished for the cost when compared to prescribed burning projects.

In the PRLRMP, the projected number of acres burned for all resource management activities ranges from a minimum of 11,660 to a maximum of 14,970. These numbers represent 1.6 to 2% of the entire Jefferson National Forest land base, so it is a small part of the overall management program especially when factors such as variable funding, narrow burning windows due to weather and fuel conditions, and availability of prescribed fire personnel and resources are considered which may all affect the ability of implementing prescribed burning projects.

**842. The Forest Service should not use prescribed fire in Southern Appalachian forests.**
**Because it will cause irreparable effects to the forests and species**

Although the Revised LRMP includes objectives for restoration of native fire-maintained habitats, we recognize that we will not be able to restore the influence of fire to the landscape to historical levels due to a variety of logistical and social reasons. Creation of early-successional forests can compensate for the loss of open fire-maintained habitats for some species. So, although we recognize that the mix of types of early-successional habitats maintained under the Revised LRMP cannot reflect historical conditions, we have considered the overall abundance of these habitats within an historical ecological context to arrive at objective levels. As some of these fire-maintained habitats are restored, need for early-successional forest as

habitat for some species will decline. However, need will not disappear; other species, such as ruffed grouse, depend upon the dense woody growth found in early-successional forests. In addition, other multiple-use considerations, such as need for habitat to support game species for recreation, ecological restoration of native forests, forest health considerations, and in some cases timber production, will continue to make creation of some level of early-successional forest desirable. See also Response #768.

**843. The Forest Service should reduce the use of prescribed fire.**

**To minimum levels to maintain air quality standards**

**Because fire has played a limited role in forest communities**

Chapter 3 of the DEIS cites the research that was utilized to determine the mean fire return intervals that are planned to be replicated for the future to help maintain, restore and enhance natural ecological processes and to reduce future fire suppression costs by proactively managing hazardous fuels. See also Response #772.

Goal 18 in the PRLRMP recognizes the need to consider the effects of prescribed fire emissions on air quality - "Emissions from prescribed burning will not hinder the state's progress toward attaining air quality standards and visibility goals." Standards FW-141 and 142 provide further guidance to minimize impacts on air quality and maintenance of air quality standards. In the Final RLRMP, a Standard has been added to further safeguard air quality, especially in those areas in jeopardy of exceeding the national ambient air quality standards. The Fire Management Plan will contain more details on smoke management to protect air quality.

**844. The Forest Service should not conduct prescribed burns.**

**In coves and north-facing slopes**

The Forest Service Manual (FSM) 5100 Chapter 5140 - Fire Use provides the management policy and objectives to use fire from either management ignitions or natural ignitions (lightning) in a safe, carefully planned, and cost-effective manner to benefit, protect, maintain, and enhance National Forest System resources; to reduce future fire suppression costs; and to the extent possible, to restore natural ecological processes and achieve management objectives adopted in approved forest land and resource management plans.

Prescribed burning is conducted within strict weather parameters to avoid an escaped fire situation and it is unlikely these parameters could be met under the weather conditions necessary to burn moist ecosystems like coves and north facing slopes.

**845. The Forest Service should not increase the prescribed fire acreage from 1,400 to 14,000 acres.**

The 14,000 acre figure is the maximum end of a range that was carefully developed based upon research determined mean fire return intervals for only the four primarily fire dependent old growth community type forest ecosystems on the JNF. In 2003, we prescribe burned less than 5,000 acres, factors such as funding which varies on a yearly basis, seasonality of burn projects to meet specific objectives can be thwarted due to weather and fuel conditions, and the availability of prescribed fire personnel and equipment all affect the ability of implementing the prescribed burning program and thus the actual acres burned in any given fiscal year could be less than the 14,000 acre figure.

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## Fire Plans

**846. The Forest Service should clarify objectives for fire plans.**
**And prioritize burning objectives to target different needs**

Fire Management Plans are the guiding implementation documents for the Forest's Fire Management program while actual projects must have a NEPA analysis completed prior to a prescribed burn being implemented. In the resultant burn plan, specific burning objectives and burning parameters are identified to meet specific on the ground resource management objectives.

## Fuels Management

## Fuels Management

**847. The Forest Service should recognize that mechanical thinning and timber harvest are not proven to reduce the risk of undesirable fire behavior.**

**848. The Forest Service should adequately address the risks of small fuels resulting from timber harvest activities.**

In a research burn conducted in the Blue Ridge Experimental Forest in Macon County, NC, more than 50 percent of the mass in litter and small wood was lost during burning. In this study, both fire intensity and severity were moderate. In addition to fire behavior, fuel size and flammability are important determinants of fuel mass consumption. Small wood is more completely consumed at lower temperatures than larger wood; plots high in wood mass in small size classes would lose more mass than plots with similar mass in larger size classes. Burning conditions that produce a more intense fire i.e. longer flame lengths with shorter residence times which equates to a lower severity fire with higher rates of spread would consume less of the humus layer and the associated nutrients though overstory mortality could become an issue dependent upon the type of commercial harvest method. Thus, this proves a strong case for using prescribed burning to treat the resultant slash from commercial harvest operations. Small logging slash, primarily in the form of foliage and fine branches, although temporarily dangerous as a fuel carrier in the case of an ignition, are a short-term problem, often decomposing within the first 4-5 years by white rot fungi in warm, moist environments according to Harvey et al. On the Jefferson National Forest, logging contractors leave tops cut at 4" diameter breast height left where the tree was felled and the rest of the logging slash is lopped and scattered to decay more quickly which consequently lessens the threat of a fire threat and distributes the fuel more evenly so if a fire did occur, or a prescribed fire were utilized to treat the slash, the fire severity would be lower and less intense.

**849. The Forest Service should provide an adequate analysis of the fuels management program.**

Fuels reduction is always a side benefit when any prescribed burning is accomplished even if it is not the primary objective. A process paper and table is on file with the Forest Fire Planner that describes for PRLRMP Objectives 17.01, 17.02, and 17.03 how many acres would have been contributed by the fire dependent forest community types 21, 22, 24, 25 by management prescription for each alternative. Objective 17.04 specifically addresses fuels management. The fuels program does not remain static from year-to-year due to funding, weather and fuel conditions, and the availability of prescribed fire personnel and equipment; therefore, fuels targets are not always achieved due to constraints outside of our control. To account for these constraints, it was determined that 28.5 percent of the maximum projected prescribed burn program would be utilized in establishing a stand alone hazardous fuel objective. We have made a concerted effort to increase our hazardous fuel prescribed burning program. This is reflected in acres projected

for all other alternatives higher than Alternative F, the 1985 Forest Plan. Research in this area has borne out the need for fire's continued presence on the landscape to help maintain, restore and enhance properly functioning fire dependent ecosystems.

**850. The Forest Service should confine its fuels reduction efforts to only the 40 meters of interface between wildlands and structures.**

For management Prescription 4J

The definition of wildland urban interface as identified in "A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10 Year Comprehensive Strategy Implementation Plan" that came from the National Fire Plan says: The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. No set width limit has ever been defined and factors such as vegetation height, vegetation flammability, topography and slope are very important in determining whether a boundary is defensible or not.

**851. The Forest Service should clear brush near communities and not harvest large fire resistant trees.**

Management Prescription 4J provides an adequate description of the desired condition that the fuels reduction treatments are striving to obtain. These projects will be site specific in nature and not a one-size fits all approach but will be tailored to address the intrinsic public concern for scenery objectives to establish an ecologically aesthetically pleasing setting that will meet reduced fuel hazard and risk objectives as well. Factors such as types of vegetation, vegetation flammability, topography and slope all are important in determining what type of fuel treatment methods are necessary to reduce wildland fire risk and to help ensure defensible space around communities. Certain mature overstory trees may need to be removed to meet the desired objectives to establish defensible space around a community. These types of decisions are appropriately made at the site-specific project level and not at the broad strategic level of a Forest Plan.

## Wildland Fire Suppression

**852. The Forest Service should restrict human access in areas at risk of fire.**

It is unrealistic to restrict human access in areas at risk of fire as all National Forest land that has a grass or woody fuel component could be at risk at given point in time dependent upon weather and fuel conditions.

**853. The Forest Service should reference the importance of managing fires for reliable utility transmission.**

The DEIS was modified on page 3-228 to include utility transmission corridors.

**854. The Forest Service should define “blackline” and explain the impacts of a blackline.**

In fire suppression and prescribed fire operations, a blackline uses fire to remove all unburned material (fuel) between the line and the fire edge. The result is a burned or black area, hence the term "blackline". Essentially the objective is to achieve a boundary of some width that the wildland fire will not be able to spot or cross over the fireline. Effects are the same as for any prescribed fire situation and are analyzed throughout Chapter 3 of the EIS in each potentially affected resource section.

**855. The Forest Service should make fire suppression tactics for old growth areas consistent with previous old growth categories.**

The three different categories of old growth management prescriptions: 6A, 6B, and 6C; are distinguished from one another by their historic disturbance regime. 6A includes those forest communities that did not historically burn very frequently, if at

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all, because they occur in moist coves or cool north-facing slopes. 6B includes those forest communities that are dependent upon fire for successful regeneration. These communities are declining due to past fire suppression efforts. 6C includes forest communities that will still regenerate in the absence of fire, but their overstory and understory species composition and vertical stand structure may be quite different. For example, our chestnut oak and southern yellow pine mixed forests were more open woodlands with a grassy understory historically. This condition was important for a number of wildlife species and may be contributing to their decline in populations today. See the EIS, Chapter 3, Biological Environment for more information on this topic.

## Fire Effects

**856. The Forest Service should address the methods and effects of firebreak construction.**
**And implement RESTRICTIVE measures to mitigate those effects in specific areas**

The Jefferson NF is not manually constructing firebreaks; instead we're managing naturally occurring vegetation to achieve the desired affect. Management Prescription 4J has been modified to clarify this point in the Final RLRMP.

**857. The Forest Service should describe potential adverse effects on endangered species from prescribed fires.**
**And what kind of monitoring will be used to assess effects**

**858. The Forest Service should adequately address the effects of prescribed burning.**
**On endangered species**

Chapter 3 of the EIS describes the direct, indirect, and cumulative effects of all forest management activities, including prescribed fire, on species by alternative. Chapter 5 and Appendix G describe the Monitoring Plan for the PRLRMP. Prescribed fire is similar to wildland fire, except prescribed fire is conducted under exacting weather and fuel conditions to accomplish specific resource objectives. The act of "burning" is still the same along with many of the primary and secondary effects of that burning. All species, including endangered and threatened species, have evolved with some frequency of fire occurring in the ecosystems where they live. Adverse effects could include direct and indirect effects. Prior to the implementation of any prescribed fire an analysis is conducted and a burn plan prepared. TESLR species are considered in the analysis and planning and protection is provided for, typically by time or place restrictions, when implementing the burn.

## SMOKE MANAGEMENT

**859. The Forest Service should not conduct prescribed burns.**
**Because prescribed burns by the Forest Service have created respiratory problems**

**Because local cities are already exceeding the annual standard**

**Because the Forest Service should honor burn restrictions as an example to citizens**

The PRLRMP and DEIS recognize that smoke from prescribed burning can affect air quality and human health. The PRLRMP contains several standards which specifically address this issue, and a new standard has been added to the Plan. The DEIS (Air Resources section) addresses how smoke from prescribed fire is managed to minimize impacts to the public and areas with poor air quality. The Fire Management Plan will include additional details on smoke management. See also the responses in Chapter 3, Air Quality of this Appendix.

**860. The Forest Service should not conduct prescribed burns on high ozone days and when fine particulate levels are elevated.**

We added a new standard to the Final RLRMP in response to this comment: Prescribed burning can be conducted in, or adjacent to, counties with forecasted high Air Quality Index (AQI Orange or higher) only if meteorological conditions ensure that smoke will be carried away from the high AQI area."

**861. The Forest Service should define a "large burn," and monitor air concentrations during large prescribed burns.**

Smoke monitoring is addressed in Plan Revision Appendix G-4, Goal 18, and Objective 18.01. Large burns are generally those over 500 acres in size. Due to limited availability of equipment the large burns will be prioritized for monitoring based on size of burn, predicted emissions and smoke dispersion, and proximity to smoke sensitive areas.

## DOMESTIC LIVESTOCK MANAGEMENT

**862. The Forest Service should consider methods of maintaining habitat openings other than grazing.**

**863. The Forest Service should only allow the grazing of bison.**

**864. The Forest Service should only allow grazing if necessary for the habitat needs of threatened, endangered, or sensitive species in the area.**

**865. The Forest Service should allow livestock grazing only where it is ecologically sensible.**

Livestock grazing is one of the multiple uses provided on National Forests. Rangelands on the Jefferson National Forest were established as a result of acquisition of old farms with open fields, bottomland pastures, and the high elevation open grasslands of the Mount Rogers National Recreation Area. These areas continue to be managed for their aesthetic value in providing a pastoral or high elevation alpine-like landscape character. Desired Conditions and Standards for rangeland management are provided for in Management Prescriptions 7G (Pastoral Landscapes), 4K3 (Mount Rogers Crest Zone Special Area), and 4K4 (Whitetop Mountain Special Area).

Sound range management practices also provide healthy forage for both domestic livestock and wildlife, valuable grassland habitat for many species of birds, and numerous recreational opportunities, like hunting, horseback riding, wildlife viewing, photography, picnicking, berry picking, and camping. Soil and water resources are closely monitored and protected. Non-native invasive species are monitored and controlled to the extent possible.

The FEIS includes 7 Alternatives, each with different responses to the issue of livestock grazing. Alternative G eliminates livestock grazing and Alternative B reduces grazing about 50 percent. Alternative A, all grazing lands are stocked to their maximum capacity. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

The Virginia Department of Game and Inland Fisheries and the West Virginia Department of Natural Resources has the responsibility to develop reintroduction programs of wildlife species not federally listed as threatened or endangered, such as large carnivores, bison and elk. The Forest Service works closely with these agencies to develop reintroduction programs when initiated, but the ultimate decision lies with these state agencies.

**866. The Forest Service should manage grasslands to utilize native grass species.**

The PRLRMP has Forest-wide standards (FW-84 and 85) that prohibits the establishment or encouragement of Category 1 or Category 2 non-native invasive plant species. In addition, 4K3-010 provides that non-native plants will be controlled or eradicated on the Mt. Rogers Crest Zone Special Area, where much

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open grassland exists.

**867. The Forest Service should manage areas to help to restore areas with habitat similar to "old homestead" setting.**
The effects of livestock grazing are analyzed in the rangelands section of the EIS. Standards and Guidelines related to grazing are described in 7.G Pastoral Landscapes and are also included in most prescriptions in the PRLRMP.

**868. The Forest Service should adequately analyze and document the effects of livestock grazing.**
**And create appropriate standards and guidelines**

**869. The Forest Service should provide clear, quantitative standards and objectives related to grazing.**
The effects of livestock grazing are analyzed in the EIS under each potentially affected resource. Rangelands are discussed in the DEIS, Chapter 3, pages 3-66 through 3-368. Standards related to grazing are described in individual management prescriptions throughout Chapter 3 of the PRLRMP. Desired Conditions and standards for JNF range allotments are described in Management Prescription 7G Pastoral Landscapes. Forestwide goals, objectives, and standards related to livestock grazing have been added to the Final RLRMP.

**870. The Forest Service should address the ongoing degradation in the Mt. Rogers National Recreation Area from livestock grazing.**
The FEIS includes 7 Alternatives, each with different responses to the issue of livestock grazing on the Mount Rogers National Recreation Area (NRA). Alternative G eliminates livestock grazing and Alternative B reduces grazing about 50 percent. Alternative B eliminates grazing from the High Country of the NRA. The effects of livestock grazing are analyzed in the EIS under each potentially affected resource. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**871. The Forest Service should allow no more fences and water developments for livestock.**
Fences and water developments are tools for managing livestock and protecting forest resources. Alternative G eliminates livestock grazing and would therefore address your comment.

**872. The Forest Service should restrict grazing in specific areas.**
Alternatives B and D restrict grazing in these areas.

**873. The Forest Service should classify areas that are in poor condition from grazing as unsuitable for grazing until conditions improve.**
These types of decisions are appropriately made at the site-specific project level and not at the broad strategic level of a Forest Plan.

## MINERAL RESOURCE MANAGEMENT

**874. The Forest Service should not allow mineral development.**
**Because water, recreation, and wildlife should have priority over industry**

**875. The Forest Service should adequately demonstrate a need to revise the plan to allow more energy production on National Forest System lands.**
We have both a responsibility and an obligation to manage mineral resources in ways that meet the intent and direction of specific mineral laws (i.e. Mineral Leasing Act of 1920; Mineral Leasing Act for Acquired Lands of 1947; Mining and Minerals Policy Act of 1970; Federal Onshore Oil and Gas Leasing Reform Act of 1987; etc.) and a multitude of other laws affecting management of the Nation's forests and grasslands. Ongoing mineral development on some NFS lands are clear examples of the ability of the Forest Service and its mineral industry partners to comply with the legal mandate and policy to "foster and encourage" mineral development while

following direction to protect other uses and environmental values. The FEIS includes 7 Alternatives, each allowing different amounts of mineral development. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments, including mineral development.

The priorities and emphasis in the RLRMP is on surface resources, not mineral resources. Water, recreation, and wildlife do receive a high priority in the RLRMP, and are protected by standards in the RLRMP. The RLRMP restricts, controls, and in many areas, prohibits surface use for mineral activities. Mineral development under the RLRMP would occupy less than 1% of the Forest.

## Leasable (Oil, Gas, Coal, Pipelines)

**876. The Forest Service should recognize the need to withdraw the remaining unleased federal lands from mineral development.**

The need for withdrawals was considered in Recommended Wilderness Study Areas. If Congress establishes any of these areas as wilderness, then the areas may be withdrawn. However, we have recommended the Cave Springs area on the Clinch Ranger District be leased with a No Surface Occupancy stipulation. The need for withdrawals was also considered on other lands, but found to be unnecessary because the Forest is managing leasable minerals, not locatable minerals. See discussion added to FEIS regarding withdrawals.

**877. The Forest Service should improve objectives for to energy-related leases.**

In the Objective for energy-related Federal leases, licenses, and permits, the time frame for processing has been increased. Most processing is expected to be for oil and gas leases covered by the EIS for the RLRMP. Because the EIS for oil and gas leasing would be complete, the processing time frame in the Objective is appropriate. Some permits, such as an APD, might require more time to process. But a processing time frame Objective is still appropriate even if the Objective is not achieved in every case. Executive Order 13212 (Actions to Expedite Energy-Related Projects) of May 18, 2001 states “executive departments and agencies (agencies) shall take appropriate actions, to the extent consistent with applicable law, to expedite projects that will increase the production, transmission, or conservation of energy.” So, processing energy-related Federal leases, licenses and permits is a Staff priority. However, the Executive Order also requires environmental protections be maintained as part of the processing. If developing these environmental protections may sometimes extend the processing time frame then that is simply part of the process.

**878. The Forest Service should consider that withdrawing lands from mining availability does not result in an irretrievable commitment of resources.**

The commenter's statement that NEPA regulations refer to an irretrievable commitment as "once it is gone, it is gone forever" is incorrect. Irretrievable commitments represent resource uses or production opportunities, which are foregone or cannot be realized during the planning period. These decisions are reversible, but the production opportunities foregone are irretrievable. Irreversible commitments are decisions affecting non-renewable resources, like minerals, where once the resource has been removed, "it is gone forever". Irreversible and irretrievable commitments of resources are not normally made at the programmatic level of a Forest Plan, however, the consent to lease, or not to lease, an area for Federal oil and gas does involve both irretrievable and irreversible commitments of resources. These are explained and disclosed in Chapter 3 of the EIS.

**879. The Forest Service should require mineral development to be consistent with the Leasing Reform Act.**

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The EIS states that the leasing analysis for the RLRMP was developed based on the Federal Onshore Oil and Gas Leasing Reform Act of 1987 and implementing regulations.

**880. The Forest Service should withdraw parts of the forest from availability to mineral leasing.**
To protect endangered mussels and fish

The RLRMP contains standards to protect endangered mussels and fish. The Endangered Species Act provides non-discretionary protection for endangered species from mineral and gas extraction activities. See also Response #876.

**881. The Forest Service should disclose what areas are proposed as administratively unavailable and provide the rationale for the decision.**
Thank you for your comment. We have included additional discussion in the FEIS (DEIS, page 3-310).

**882. The Forest Service should manage oil and gas leasing to be unobtrusive and provide open areas for wildlife.**
The RLRMP has standards for scenery providing for unobtrusive oil and gas operation. Openings can be used by wildlife. Reclamation is required by RLRMP standards as well as federal and state regulations.

**883. The Forest Service should restrict access for oil and gas exploration and development**
Through non-issuance, buy-backs, and expiration of permits.

The RLRMP restricts access for oil and gas exploration and development more than the 1985 Forest Plan (see EIS for comparison of Alternatives). Congress has determined that oil and gas exploration and development are appropriate uses of the National Forest. Congress passed the Federal Onshore Oil and Gas Leasing Reform Act of 1987 and increased the National Forest role and authority in oil and gas leasing. See also Response #874.

The Final RLRMP has been changed make the Peaks of Otter salamander management prescription (8E2) administratively unavailable for oil and gas leasing.

**884. The Forest Service should protect areas with special values with a No Surface Occupancy classification.**
No Surface Occupancy Stipulations were applied to several Management Prescriptions when appropriate. We can prohibit surface occupancy in limited areas of all leases without a Surface Occupancy Stipulation. See Chapter 3 of the EIS for discussion.

## EFFECTS

**885. The Forest Service should adequately consider the direct, indirect, and cumulative effects of mineral development activities.**

**886. The Forest Service should adequately address the effects of mining.**
On air quality

On visual quality

On cultural resources

On human health

Cumulative effects

Resulting from access management

On recreational experiences

On soil stability and regeneration capacity

On Wild and Scenic Rivers

On the spread of invasive species

**887. The Forest Service should adequately address the effects of oil and gas exploration and development.**

Thank you for your comment. Direct, indirect, and cumulative effects of mineral development, including associated access, are adequately addressed in Chapter 3 of the DEIS, Social/Economic Environment, Mineral Resources (pages 3-301 through 3-366). Effects of Federal Oil and Gas Leasing and Consent are disclosed for each potentially affected resource by alternative in this section. For example, effects on recreation from minerals development are disclosed in the DEIS Chapter 3, pages 3-362 through 3-365.

Effects of all Federal minerals are disclosed both in this section and throughout Chapter 3 of the EIS under each potentially affected resource. Effects have been discussed for soils, invasive species, air quality, cultural resources, and human health. For example, effects of access needs for mineral development on soil productivity are addressed in the Physical Resources, Soils section of the EIS. We have supplemented the effects discussion in the FEIS related to invasive species (DEIS, 3-199) and Wild & Scenic Rivers.

Potential mineral activity can take place in a variety of locations across the Forest. Minerals are addressed in the individual management prescriptions in the PRLRMP and in the Social/Economic Environment-Mineral Resources section of the DEIS. Scenic Integrity Objectives are assigned to every acre of the National Forest and are based on scenic classes and prescriptive area. Mineral activities within the prescriptive area are to meet the SIO assigned within the prescriptive area. The anticipated effects of mining on the scenery resource is addressed in the DEIS on pages 3-365 and 3-366.

The effects of past mining activities and projected future mining activities are considered in the soil effects section of Chapter 3 of the DEIS. Coal mining and mineral material mining were included in the long term effects to soil productivity for each alternative in the DEIS. Effects were long term due to soil displacement. Slope (soil) stability is an effect that is difficult to analyze at a broad (Forest-wide) scale. Most potential impacts to slope stability from mining will come from roads and facility development and is discussed in the Geologic Hazards section of Chapter 3. Effects to slope (soil) stability and regeneration potential (soil productivity) are evaluated on a site-specific basis as part of the required environmental analysis documentation and public involvement for any new mining proposals on the Forest. The positive effects of BMPs have been reported in papers by the VA Dept of Forestry, West VA Dept of Natural Resources, VA Tech, Mississippi State University, USDA Forest Service, Florida Division of Forestry and south Carolina Forestry Commission, all cited in Appendix H of the DEIS.

**888. The Forest Service should address coal bed methane development.**

Thank you for your comment. A discussion of coal bed methane has been added to FEIS.

## STANDARDS

**889. The Forest Service should restrict coal mining and adequately consider its effects.**

The Surface Mining Control Act of 1977 prohibits surface coal mining on the Jefferson National Forest. Before leasing any lands for underground coal mining, we would, in cooperation with BLM, conduct an environmental analysis to consider the potential effects of the proposed operation.

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**890. The Forest Service should develop standards to protect natural resources from the effects of mining and mining-related activities.**
Thank you for your comment. We developed both forestwide standards in Chapter 2 of the RLRMP and standards for each management prescription in Chapter 3 of the RLRMP to protect natural resources from the effects of exploration and development of mineral resources.

**891. The Forest Service should ensure reclamation of all mining sites.**
Federal and State laws and regulations require reclamation. In addition, the RLRMP has an objective and standards to ensure reclamation.

**892. The Forest Service should provide a contingency plan for hazardous spills of chemicals used in the mining process.**
Federal and State laws and regulations require contingency plans for spills of hazardous materials.

**893. The Forest Service should provide high standards of protection and mitigation for recreational gold collecting.**
The RLRMP contains standards that apply to recreational gold collecting.

### PRIVATE SUBSURFACE RIGHTS

**894. The Forest Service should seek the acquisition of mineral resources only through purchase, not through exchange.**

**895. The Forest Service should adequately address mineral rights.**
The federal government acquired the Forest lands subject to mineral rights. While recognizing these mineral rights, the Forest does protect surfaces resources using applicable State and Federal laws and regulations. Standards that guide relationships with mineral rights owners are contained in the RLRMP, including the forestwide standards for Reserved and Outstanding Minerals in Chapter 2.

## LANDS

### LANDS (GENERAL)

**896. The Forest Service should collaborate with interested parties to resolve national forest system lands issues**
We have carried out a collaborative process in determining what the public wants to see in this RLRMP. Issues were discussed openly and debated at a variety of times and places. The Jefferson National Forest maintains 2,540 miles of property boundaries across 19 counties in Virginia, one county in West Virginia, and two counties in Kentucky. Thousands of people could be considered Forest inholders. Persons living in and around the Jefferson National Forest were informed in the same way notice was provided for the general public. Several individuals who identified themselves as having inholdings on the Forest participated in many of our public involvement opportunities. Not everyone may choose to identify themselves as a Forest inholder.

### Management Prescriptions

**897. The Forest Service should allocate Management Prescription 0.A, Custodial Management, to several tracts of land.**
Management prescription 0A was used in Alternative C, which was not studied in detail. The rationale for dropping Alternative C from detailed study is explained in Chapter 2 of the EIS. Many of the characteristics of the custodial management prescription (0A) are included in the wilderness and backcountry management

prescriptions (1A, 1B, 12A, 12B, and 12C) which are included in all of the alternatives studied in detail. Alternative G has the greatest amount of these management prescriptions, followed by Alternative I. Alternative G comes closest to meeting the others values you expressed in your comment. Management prescription 0B is used to identify tracts of land available for exchange in order to meet our goals for Lands described in Chapter 2 of the PRLRMP. Investments in maintaining or improving scenic integrity are not appropriate for these lands (see the desired future condition and emphasis for 0B in Chapter 3 of the PRLRMP); therefore scenic integrity objectives are lower than for other management prescriptions.

**898. The Forest Service should not allocate Management Prescription 0.B, Custodial Management – Small, Isolated Areas, to several tracts of land.**

Having some of the characteristics listed does not preclude the exchange of land out of federal ownership. A public interest determination is made and an environmental analysis conducted as part of the land exchange process and the effects on characteristics such as those listed will be determined and considered at the project level as part of the decision making process. Therefore, it is appropriate to allocate those tracts of land to Management Prescription 0B

## Land Adjustment

**899. The Forest Service should ensure that land exchanges will not lead to degradation or coal mining.**

Land exchange cases must comply with agency policy and direction, forest land management plans and applicable laws including the National Environmental Policy Act. The land exchange decision is a determination by the authorized officer if the public interest is well served by exchanging federal and private interests in land, not to approve or disallow specific activities following completing of the exchange. Although reasonably foreseeable actions and cumulative effects are considered in the analysis to come to a reasoned decision on public interest, once the exchange is completed, the conveyed federal lands are managed under private ownership in accordance with local zoning, municipal code and state and federal regulations. Private lands conveyed into federal ownership are managed in accordance with forest land management plans. Coal mining is an acceptable form of energy extraction in all states and its methods and impacts are highly regulated by multiple state and federal agencies both on federal and on private lands. Forest Service policies, practice and procedure is to avoid regulating private property use through the use of reservations except where clearly shown to be in the public interest or required under federal law. Outstanding mineral rights on federal lands are fully recognized in the conveyance deed to the private exchange party and are beyond the control of the federal agency.

**900. The Forest Service should not exchange land.**

Land exchanges are a valuable tool available to the Forest Service and are essential to good management of National Forest System lands. To name a few benefits, they are used to resolve boundary disputes, protect natural resources and habitats, and provide for access and recreational opportunities. The Forest will continue to utilize this tool when appropriate and in the public interest. In regards to land acquisition, with the exception of Priority I & II Appalachian Trail tracts, all acquisition is done on a willing seller basis. Goals and objectives for land exchange are stated in Chapter 2 of the RLRMP.

**901. The Forest Service should develop standards and guidelines to ensure that all exchanges are in the public interest.**

When exchanging land, regulation and policy require a determination of public interest and outline the factors to consider when making that determination. It is

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not necessary to repeat regulation and policy within the RLRMP.

### Private Property Rights

**902. The Forest Service should support private property rights.**
We take great care to protect the rights of private property owners while also assuring that the rights and interests of the United States are also protected. Penalties for violation of rights held by either party are established by the court and not through the Forest planning process.

**903. The Forest Service should purchase more inholdings and adjacent lands from willing sellers.**
The Forest has an active land acquisition program and purchases land from willing sellers as funds to do so are available. The priorities for land acquisition are stated in Chapter 2 of the RLRMP.

**904. The Forest Service should amend 1A-038 to read "provide reasonable, adequate access to private land."**
Access to the larger parcel within the Mountain Lake Wilderness is by prescriptive right established prior to acquiring the National Forest System lands that it crosses. Deeded access exists between the two parcels. Therefore it is not up to the Forest Service to determine what is reasonable.

## SPECIAL USES

### Recreation and Other Special Uses

**905. The Forest Service should clarify FW-232.**

**906. The Forest Service should revise FW-232 to include special use authorization standards.**
This standard has been rewritten in the final RLRMP.

**907. The Forest Service should ensure that access for military training on the Jefferson National Forest is an acceptable use and is not precluded due to conflicts with other uses**
Military use has been and continues to be an acceptable use of National Forest System lands if consistent with management area direction. Specifically naming each particular type of use that is acceptable in the plan, such as military training exercises, is not necessary; however we did add military exercises as an example in the background section of Lands and Special uses in Chapter 2 of the RLRMP in response to your comment. Regulation requires precluding any use type that would "unreasonably conflict or interfere with administrative use by the Forest Service, or other scheduled or authorized existing uses of the National Forest System", to specify that military training would not be precluded due to conflicts with other uses would not be consistent with this regulation.

**908. The Forest Service should analyze the effects of alternative energy facilities on all other forest resources.**
The effects of alternative energy facilities will be analyzed as part of a site specific analysis that will be conducted if/when an alternative energy facility is proposed on NFS lands.

### Utility and Communication Infrastructure (General)

**909. The Forest Service should clarify that facilities and activities associated with existing special use authorizations will continue to be permitted even in recommended wilderness study areas.**

**910. The Forest Service should not limit linear rights-of-way or utility corridors in areas proposed for wilderness.**
There are no known utility authorizations within Prescription Area 1B,

Recommended Wilderness Study Areas under the PRLRMP. Standard 1B-001 of the PRLRMP states that standards for Prescription Area 1A Designated Wilderness apply except where otherwise noted. Regarding Lands and Special Uses, Standard 1A-040 of the PRLRMP would apply. This standard states that the areas are not available for new special uses, except outfitter guide operations as directed under the Wilderness Act and directs a phase out of existing nonconforming permitted uses which would include roads and utilities.

**911. The Forest Service should ensure adequate road access to utility facilities, even in inventoried roadless areas, as required by the Federal Land Policy Management Act.**

Needed existing access roads within inventoried roadless areas would be allowed to remain since they were accounted for during the inventory of improved and unimproved roads. See Response #695.

**912. The Forest Service should not use recreation opportunity spectrum classifications as zoning control to restrict utility or other special uses.**

Forestwide ROS standards FW-159 through FW-167 on page 2-242 of the PRLRMP are provided to control new road and facility construction to protect against progressive loss of semi-primitive non-motorized and semi-primitive motorized ROS class acreage. These standards apply only to Alternatives E, G, and I. Other alternatives treat semi-primitive ROS classifications differently. The Record of Decision explains the rationale for which alternative provides the best balance in meeting the wide range of public desires evident in the comments.

**913. The Forest Service should build more flexibility into the plan so as to allow for changes in permitted uses may be compatible with recreational opportunities without requiring a plan amendment.**

We believe adequate flexibility is present the ROS Forestwide standards. Most of the standards apply to new uses with recognition that existing conditions may not meet the assigned ROS classes (FW-161) and exempting valid rights and leases from standards FW-162 through FW-167.

**914. The Forest Service should consider opportunities to co-locate recreational trails with utility corridor rights-of-way.**

**And should consult with the utility special use permittee regarding conflicts and relocation of trails**

Thank you for your comment. In most cases, co-location of recreation trails with a utility corridor is not preferred for aesthetic reasons. We agree that, in general, trail maintenance and relocation will be emphasized over new construction. The utility permittee should be involved in trail relocation or construction decisions affecting a permitted utility right-of-way. Conflicts between trail and utility corridor rights-of-way are resolved within the prescription area standards and through project level NEPA analysis.

**915. The Forest Service should review Scenic Integrity Objectives and ensure that they are consistent with special uses and actual current conditions.**

Scenic integrity objectives are assigned to all acres of the Forest based on the components that determine scenic classes. Scenic integrity objectives are assigned to scenic classes within each prescriptive area. The SIOs for prescriptions 5B Designated Communication Sites and 5C Designated Utility Corridors are found on pages 3-70 and 3-71 respectively, of the PRLRMP and range from Moderate to Low. Sometimes the nature of utility projects and other special uses makes it difficult to meet the adopted SIO. Where the Record of Decision for a project indicates that the SIOs are not able to be met even though mitigation techniques are applied, the adopted SIOs in the LRMP are not changed to accommodate the project. They remain the same, but we recognize that they cannot be met and indicate such in the ROD.

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**916. The Forest Service should eliminate procedural delays in the siting and permitting process for large, interstate and regional utility transmission projects.**
The procedure for processing and permitting utility transmission projects is outside the scope of a forest plan.

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**917. The Forest Service should include in the final plan a discussion of the social and economic importance of large utility transmission projects.**
While we agree that electric transmission and distribution systems are present on the Forest and serve important public needs, we disagree that the RLRMP needs to discuss in detail their importance as there are other reports such as the National Energy Policy that do just that. The RLRMP has been adjusted to include existing transmission facilities including the 765 kV line and expands these existing rights-of-way and designates them as utility corridors in order to meet future needs. We also do not feel that it is necessary to include a discussion on every distribution line that is authorized and its importance.

**918. The Forest Service should acknowledge and incorporate statutory criteria and Forest Service Manual direction for locating utility corridor rights-of-way on either private or National Forest System lands.**
Standard FW-232 has been changed to be consistent with regulation and FS policy stating, "Evaluate new special use authorizations using the criteria outlined in 36 CFR 251.54 and according to Forest Service policy. Limit to needs that cannot be reasonably met on non-FS lands or that enhance programs and activities". These changes allow for consideration of uses that cannot be reasonably met on non-FS lands and does not require that authorizations only be considered under circumstances in which the need for the use cannot possibly be met on non-NF land.

**919. The Forest Service should consider decommissioning utility sites and corridors at the end of their lease or usefulness.**
Terms and conditions included in special use authorizations include provisions for decommissioning authorized uses. Communications sites and utility corridors are designated in an effort to concentrate uses, thereby reducing the effects to other resources. If uses within corridors or at communication sites are abandoned, a determination can be made at that time whether or not to continue to reserve those areas for future uses. A forest plan amendment can be done at that time to remove the site or corridor from the management prescription area if it is determined appropriate to do so.

**920. The Forest Service should include in the final plan a discussion of the Department of Energy report regarding the relationship to and effects on various forest resources from large utility transmission projects.**
While the DOE report expresses concerns regarding the need for more effective transportation planning and coordination among federal agencies and their regional and state counterparts, we do not feel that it is appropriate to incorporate the DOE report into the RLRMP but can use it as a tool when analyzing proposed uses to best determine how to best coordinate with other agencies at both the state and federal level. Utility corridors have been designated to address future demand. The process by which special use authorizations are processed is outside the scope of the forest plan revision as it is established by national policy. The potential effects and compatibility of expanding uses within designated corridors is analyzed at the project level.

## Utility Corridors

**921. The Forest Service should ensure that the American Electric Power's recently authorized 765kv transmission line project is recognized in Alternative I**

The 765kV transmission line corridor has been added to the map.

**922. The Forest Service should include adequate discussion of the planning for and designation of future utility corridor needs as required by the FLPMA.**

Although FLPMA authorizes the Secretary to designate utility corridors, it does not require it. It does however state "In order to minimize adverse environmental impacts and the proliferation of separate rights-of-way, the utilization of rights-of-way in common shall be required to the extent practical..." The Forest however, has been responsive to future needs by designating several corridors in the RLRMP. These corridors are located where utility rights-of-way already exist. In looking at where these corridors are located and the demand for expansion over the past 10 years, it is reasonable to assume that the expansion of these existing rights-of-way into utility corridors will meet future needs.

Although FLPMA is the statutory authority for authorizing utility and transportation uses; it does not require that we issue them where ever and when ever proponent requests one. FLPMA requires that each right-of-way contain terms and conditions that minimize damage to scenic and aesthetic values and fish and wildlife habitat and otherwise protect the environment; require compliance with applicable air and water quality standards, require compliance with State standards for public health and safety, environmental protection, and siting, construction, operation and maintenance of or for rights-of-way for similar purposes if those standards are more stringent than applicable federal standards; and such terms and condition necessary to protect federal property and economic interests; manage efficiently the lands subject to the right-of-way or adjacent thereto and protect the other lawful users of the lands adjacent to or traversed by such right-of-way; protect lives and property; protect the interests of individuals living in the general area; and requires location of the right-of-way that will cause least damage to the environment. Standards and guides in the RLRMP are consistent with FLPMA and designed to just what FLPMA requires.

**923. The Forest Service should provide for greater than the proposed 100-foot offset for access to utility corridors in Brush Mountain roadless areas.**

**In case emergency repairs are needed**

**And should accurately reflect the resulting adjustment of acreages assigned to N or R management prescriptions**

We have expanded the 100-foot-offset and designated a 500-foot utility corridor in the Final RLRMP where the existing rights-of-way are located adjoining the Brush Mountain and Brush Mountain East roadless areas, as well as several other areas where appropriate.

If emergency repairs are needed for AEP's 138 kV transmission line that requires road construction, access could be obtained through adjacent National Forest not designated as roadless. If emergency repairs are required for the 345 kV line, access can be provided via the 500-foot designated utility corridor. If that is not possible because of the terrain and the roadless designation on both sides of this line, vehicular access could be provided as long as road construction is not required. Maintenance can also be conducted through the use of a helicopter. The law does not require that we provide vehicular road access that would require road construction.

Roadless area boundaries, descriptions and acreages and well as the acreages of utility corridors have been updated to reflect existing utility rights-of-way and appropriate access, however the designation of utility corridors is a forest plan decision which does not affect the roadless area inventory per se.

**924. The Forest Service should update the discussion of the location and acreage of existing and**

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**planned utility corridors in the New River Management Area.**
The New River Management Area has been updated and the acreage of the utility corridor that incorporates the 765 kV line has been updated.

**925. The Forest Service should incorporate into the final plan the amendments made to the current plan for existing and planned utility corridors in certain roadless areas.**
The roadless area boundaries, descriptions and acreages have been updated in Appendix C.

**926. The Forest Service should document the existing utility corridor where a transmission line crosses the New River north of Glen Lyn.**
Utility corridors have been established where the existing line crosses near Glen Lyn as well as where the AEP 765 kV project is located.

## EFFECTS AND STANDARDS

**927. The Forest Service should include estimates of the quantities of timber that might be removed to accommodate utility transmission or distribution lines.**
Although the RLRMP establishes utility corridors, where and when these corridors will be developed is purely speculative at this time. For that reason, we disagree that quantities that are likely to be removed can be estimated in the EIS. This type of analysis is appropriately completed at the site-specific project level.

**928. The Forest Service should evaluate the incursion of utility corridors into old growth stands as part of the designation and management of old growth areas.**
The impacts of any new utility lines upon existing old growth would be evaluated at the site-specific level during project NEPA analysis.

**929. The Forest Service should specify that utility corridors will be required to cross perennial and intermittent streams as close to 90 degrees as possible, and compliance with best management practices.**
**To minimize effects on the riparian zone**

Riparian corridors are protected in the PRLRMP. See management prescription 11. Utility crossings of the riparian corridor will be handled on a site-specific basis.

**930. The Forest Service should develop a specific monitoring program for the use of utility corridors by wildlife.**
These are covered more generally in Appendix G, specifically shrub/scrub and early successional monitoring elements.

**931. The Forest Service should avoid locating any facilities where they might have negative effects on resources.**
The RLRMP recognizes the need to avoid damage to geologic resources and to consider geologic hazards in the design and construction of forest facilities. This has been accomplished through the inclusion of standards in individual management prescriptions in Chapter 3 of the RLRMP as well as forestwide standards in Chapter 2.

**932. The Forest Service should analyze the full scope of potential impacts from the development of pipeline corridors.**
**Especially burial depth on the potential for erosion**

The full scope of impacts associated with the development of pipeline corridors are adequately considered during the project level environmental analysis. Establishment of rights-of-way corridors is required by the Federal Land Policy and Management Act of 1976, which states "In order to minimize adverse environmental impacts and the proliferation of separate rights-of-way, the utilization of rights-of-way in common shall be required to the extent practical...." It also states, "Any existing transportation and utility corridors may be designated as

transportation and utility corridors pursuant to this subsection (Sec. 503) without further review. Utility corridors that are designated in the RLRMP are already impacted by existing rights-of-way and the designated corridors are an extension of those rights-of-way.

**933. The Forest Service should explain whether abandoned pipelines will be removed and what the potential impacts of such removal would be.**

The determination whether or not pipelines will be removed, and the associated impacts of removal, is a project level analysis.

**934. The Forest Service should ensure that forest-wide standards for special use authorizations and linear rights-of-way are consistent with FLPMA and NEPA regulations.**

Forest wide standards for special use authorizations and linear rights-of-way are consistent with both FLPMA and NEPA regulations. We fully recognize that statutes granting the authority to authorize uses must be considered in evaluating special use applications and the forest-wide standards to not conflict with those statues. References to the FLPMA have been added to the introduction of RLRMP in Chapter 1.

**935. The Forest Service should ensure that the plan adequately explains the lack of legal status of desired conditions.**

**In relation to authorized uses**

**In relation to special uses**

The term "prohibit" in regards to public utility rights-of-way and communication special uses has been changed to "unsuitable" to more accurately reflect the Forest Service legal authority under FLPMA.

**936. The Forest Service should acknowledge that a forest plan may not prohibit authorized special uses in specific areas and should address that fact in its response to comment.**

The term “prohibit” associated with the authorization of special uses has been removed in the Final RLRMP. Management areas prescriptions identify areas that are suitable or unsuitable for certain types of special use authorizations.

**937. The Forest Service should explain the basis for the acreages listed in Table 2-13 and provide the relevant statutory authority for identifying where special uses are permitted or prohibited.**

The acreages were derived from GIS base maps that outlined management prescription areas by acre that had a similar restriction regarding linear rights-of-way and communication sites, adding those that were similar by alternative. The term “prohibit” in regards to the issuance of special use authorizations has been removed in the final version of the RLRMP. Management prescriptions areas are identified as suitable or unsuitable.

**938. The Forest Service should clarify FW-241 to explain what limits will be placed on the use of permittee access roads.**

**And how such access could affect the resources of the area**

Effects to resources, mitigation measures, and limits placed on access roads are best determined at the project level.

**939. The Forest Service should add language to standard 4K2-025 to prohibit new linear rights-of-way and other ground disturbing special use activities.**

The standard now reads, “These areas are unsuitable for new linear rights-of-way and communications sites”. Statutory authority does not allow us to prohibit certain uses. Site specific analysis of any proposed project would be conducted that would require mitigation in order to protect the area from negative effects.

**940. The Forest Service should strengthen forest wide standard 237 to mitigate impacts of bird collisions with utility towers.**

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**And should not approve any activities which risk takings under the Migratory Bird Treaty Act**

The RLRMP does not approve activities; that is done at the site-specific project level. Impacts of proposed uses on bird-tower collisions will be analyzed at the site-specific level and appropriate mitigation measures applied. If an activity risks taking under MBTA, we will apply to the US Fish and Wildlife Service and they will determine whether a taking permit will be granted. If a taking permit is granted, the activity may be authorized.

## Communication Sites

**941. The Forest Service should incorporate objectives for communications sites into the final plan.**
**And should include the timetable for accomplishing objectives**

Objectives for individual communication sites are addressed in a site specific communication site plan and not as part of the forest planning process.

**942. The Forest Service should consider not permitting any new communication sites under the 5B prescription and start phasing out some existing ones.**
**And should analyze impacts on migratory and other birds**

**And should determine whether alternative technologies, locations, or methods exist**

We are designating existing sites, even those where demand for additional use is low because it is Forest Service policy that "Except for single uses which involve minor development (such as personal receive only use, resource monitoring use, or temporary use), communications sites must be designated…" Although demand is currently low at existing sites, and the major demand is currently to provide wireless coverage with most of these sites being best located on private land, phasing out existing sites is not consistent with policy, FLPMA and the Telecommunication Act of 1996. By designating these sites we will be able to meet future demand by locating at the existing site, co-locating on other facilities, or by locating on private land. New sites that are being designated as part of the Forest Plan revision process are a result of demand and designating them is required prior to issuance of any authorization for that site.

Impacts on migratory and other birds is analyzed at the project level before establishing a new use at an existing site or expanding currently authorized uses and not conducted as part of the forest planning process.

Although the commenter would like to reduce the need for communications sites on public land, doing so is not consistent with FS policy and statutory requirements under FLPMA and the Telecommunication Act of 1996. New technology may well offer the ability to eliminate particular uses at a communications site, but it will not eliminate the need for communication sites altogether in the foreseeable future.

**943. The Forest Service should analyze the degree to which communication sites might contribute to the spread of noxious weeds.**
**And the potential impacts of mitigation measures**

All uses of the national forest might contribute to the spread of noxious weeds. Noxious weeds have been discussed in Chapter 3 of the EIS. This discussion has been expanded and improved as a result of comments. Existing sites being designated have had site specific analysis conducted prior to their establishment; or a site specific analysis is conducted as the uses expire prior to a new authorization being granted (if the use was established pre-NEPA) The spread of noxious weeds is best analyzed at the site specific level.

**944. The Forest Service should analyze the degree to which communication sites might affect visual resources.**

**945. The Forest Service should analyze the degree to which communication sites might affect recreation.**

Before new uses are established or existing sites are expanded a site-specific analysis is conducted that analyzes the effects on visual and recreation resources. The impacts to visual and recreation resources are analyzed when communication site plans are drafted. Height of the facilities allowed is outlined in each individual communication site plan.

# SOCIAL AND ECONOMIC VALUES

## SOCIAL VALUES

**946. The Forest Service should provide more law enforcement.**

**To stop poaching and arson**

While we agree that law enforcement is an important part of managing the JNF, this is an administrative activity outside the scope of a Forest Plan. A Forest Plan is a strategic document that makes only the broad decisions defined in the National Forest Management Act.

**947. The Forest Service should not inhibit activities that cause no harm to others or forest resources.**

We appreciate your opinion in this area and have taken great pleasure in discussing the merits of your comment. However, nakedness and intoxication are violations of State and Federal law and not decisions made in a Forest Plan.

**948. The Forest Service should recognize the importance of National Forest System lands to local communities.**

We agree and have recognized this fact from our development of significant issues to the selection of the preferred alternative documented in the Record of Decision (DEIS, page 1-7, 2-29, 2-30, 3-378 through 3-403, throughout the RLRMP, and in the Record of Decision).

**949. The Forest Service should pay taxes to counties.**

We make payments to the state under the Secure Rural Schools and Community Self-Determination Act passed by Congress in 2000 (P.L. 106-393). These funds replaced the former federal revenue sharing of 25 percent of all fees collected on National Forest land from activities such as camping, special use permit fees, and timber sales. The funds are distributed to counties based on national forest acreage within the county. The funds are used for roads and schools. Congress authorized Payment in Lieu of Taxes (PILT) monies to compensate county governments for private property taxes forgone due to public ownership. PILT amounts vary based on the amount of national forest monies paid in the previous year and congressional appropriations. PILT payments are also made to the counties based on acres of national forest land within the county. In 2002, PILT payments to Virginia counties were $1,802,205, West Virginia counties $217,321, and Kentucky counties $19,682.

## ECONOMIC VALUES

**950. The Forest Service should identify and consider economic issues and impacts.**

**951. The Forest Service should reconsider the costs and benefits of the Draft Plan.**

**952. The Forest Service should include an analysis of externalities in the DEIS.**

**953. The Forest Service should develop quantified monetary values for ecosystem services and incorporate these values into the DEIS.**

**954. The Forest Service should better determine the combination of forest resources that will**

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**maximize net public benefits.**

**955. The Forest Service should complete an analysis of relative resource values in allocating lands suitable for timber production.**

**956. The Forest Service should utilize the best available science in determining to what extent monetary values can be assigned to non-market goods and services.**

When discussing the evaluation of Forest Plan alternatives, the regulations state that the evaluation 'shall compare present net value, social and economic impacts, outputs of goods and services, and overall protection and enhancement of environmental resources' [36 CFR 219.12(h)]. It is this process that results in a Forest Plan that 'maximizes long term net public benefits in an environmentally sound manner' [36 CFR 219.1]. The NFMA regulations define net public benefits as: 'An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index [36 CFR 219.3].' Such an approach is reasonable given the vast array of environmental, social, and economic considerations in establishing or revising a Forest Plan. It is also consistent with the definition of multiple use as given in the MUSY Act.

There are many values associated with National Forests that cannot be expressed in monetary terms. Many values are highly personal and subjective in nature. These, however, may be the greatest value of National Forests to the nation. Other values, such as existence, option and bequest values, can and have been expressed in monetary terms in the economics literature. The economics literature clearly shows that people hold passive use values for a variety of conditions on the National Forests. Although the Forest Service recognizes the validity and importance of these values, the existing literature is not sufficient to serve as a quantitative measure for some of these values that are often geographically localized in nature. Therefore, passive use values for such things as wilderness and wildlife habitat must be taken into consideration in a qualitative sense. Because such values are not expressed in monetary terms and therefore not included in the economic efficiency analysis does not mean that they have been excluded from the determination of 'net public benefits.'

The Implementing regulations of NEPA expressly avoid a cost-benefit analysis as being a necessary basis for decisions: 'For purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations.' (40 CFR 1502.23) For those resources that can be reasonably valued via market data (e.g. timber, minerals and range) and for those non-market resources that have Forest Service estimated values from research (recreation), we have presented values in the present net value calculations. For resources that have no values estimated by generally accepted methods, we have chosen to discuss them in a narrative manner. We do not use socio-economic analysis quantified measures and indices as the sole means of displaying alternative inputs (FSM 1970.8(5)). The Record of Decision contains the rationale the decision-maker used in selecting the alternative that best maximizes the various monetary and non-monetary net public benefits.

**957. The Forest Service should further develop an analysis of average annual cash flows and non-cash benefits.**

Table 03 of FSH 1909.12, 4.13 has not been included in the DEIS. A similar table showing undiscounted as well as discounted decade costs and revenues by alternative and by program is part of the process record represented by large spreadsheets.

**958. The Forest Service should use mathematical modeling techniques to identify the most economically efficient solution to meet the goals and objectives of any alternative.**

We have presented a present net value of resources which are suggested in 36 CFR 219.12(g)(1). For those resources that can be reasonably valued via market data (e. g. timber, minerals) and for those non-market resources that have Forest Service estimated values from Forest Service Research, we have presented values in the present net value calculation. For resources that have no values estimated by generally accepted methods, we have chosen to discuss them in a narrative fashion as part of the assessment of net public benefits. Such an economic efficiency analysis is prescribed in the Forest Service Handbook FSH 1009.17, Chapter 10. The discussion of how the selected alternative maximizes net public benefits can be found in the Record of Decision.

Many of the "ecosystem services" or "social losses" that you refer to are considered to be effects remote from resource management of these forests. Their speculative and unforeseen nature does not warrant a consideration in the efficiency analysis required by 36 CFR 219. Resource effects on other resources are discussed in Chapter 3 of the EIS.

The most recent information available at the time of our analysis are prices expressed in 1989 dollars and estimated from 1989 to 2040, which are found in the FS publication "Resource Pricing and Valuation Procedures for the Recommended 1990 RPA Program". We estimated the real price growth to year 2000 and adjusted the values to reflect 2000 prices. All resources were assumed to be priced in 2000 constant dollars in order to be conservative with the analysis, hence technology and income growth are not accounted for in price estimations. Having a conservative Present Net Value analysis that is still positive indicates a good certainty in your program objectives of achieving the Forest Service hurdle rate of 4 percent. Predicting income growth and technology changes for the Forest Service planning horizon (50 years) would be pure speculation.

Forest Service non-market valuations for forest planning are provided by Forest Service Research and Forest Service Strategic Planning and Resource Assessment in the Washington Office. The values used are found in Appendix B in the table presenting the Economic Benefits and Financial Revenue Values of the DEIS. Agency policy makes provision for using a 4 percent real discount rate for long term resource program analyses in the FSH 1909.17, 15.42.

The recreation and wildlife/fish estimates are not constant by alternative. A disaggregation of visitor days by recreation type was developed. This was needed to determine the present net value of the alternatives and the economic impact of the alternatives since different recreation activities have different values, and different recreation activities have different expenditures in the local economy. These estimates can be found in the process records.

The timber product estimates were taken from the SPECTRUM model and the recreation/wildlife/fish estimates were derived from NVUM (National Visitor Use Monitoring) results. The full procedure for estimating the recreation/wildlife/fish estimates can be found in the process records. Pages 21-30 through 22-30 of Appendix B describe in more detail how FVS and FIA data were utilized on the JNF. The second paragraph of page 21-30 clearly indicates that whenever possible, the FIA data used was limited to plots located on National Forest System lands within Virginia. For the most common working groups (collections of Forest Types: e.g. upland oak or cove hardwoods) this was easily accomplished. The discussion goes on to state that FVS was calibrated to reflect the "real world" situation on the JNF. FVS is sufficiently flexible that it can be calibrated to simulate outputs expected in a local area. A great deal of time and effort was expended to ensure that the volumes output by FVS are consistent with historical volumes generated on the JNF. We

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believe that the volume outputs generated by FVS are valid, both statistically and in terms of "real world" experience. Output volumes were summarized by Appraisal Groups (e.g. high value sawtimber, hardwood roundwood, pine round wood, etc.) because these groupings generate similar revenues or stumpage prices. Indeed, the Appraisal Groups on the JNF were defined based on historical stumpage prices and similar appraisal groups we utilize in our Timber Sale Program.

**959. The Forest Service should conduct an economic analysis within a timeframe appropriate to the resources being managed.**

The present net value analysis includes estimated short-term and long-term costs and benefits over the next fifty years that are discounted back to the current year for each of the alternatives. The analysis includes resource values with a market value and resource values with a non-market value available from research. The remaining resource costs and benefits have been discussed in a qualitative manner. The timber program in particular incorporated direct and indirect costs since costs came from TSPIRS. Socio-economic impacts for several resource programs are reflected in the jobs and income effects shown in Chapter 3. Both quantitative and qualitative values and benefits are considered in determining the alternative that best maximizes 'net public benefit' and rationale is addressed in the Record of Decision. An estimation of the budget required for each alternative was added to Chapter 3 under Social and Economic impacts. The budget reflects the varying levels of outputs (including long-term costs such as for maintenance) for all the resources for each alternative.

**960. The Forest Service should explain whether or not the Plan Revision will be in compliance with NEPA and the Forest Plan given the unreliability of the accounting data.**

The forest plan is in compliance with NEPA. Administrative procedures related to accounting practices are beyond the scope of a forest plan.

**961. The Forest Service should not use tax dollars to subsidize timber harvesting or mining.**

At the EIS and Forest Plan programmatic level, estimated costs and benefits for the timber program are analyzed in a present net value fashion. Results of the preferred alternative can be viewed in Chapter 3 of the EIS under "Present Net Value of Alternatives" Individual timber sales are analyzed before a project is undertaken. Discounted costs and benefits are considered to see if the project will be economically efficient. Sale analyses include costs for roads. If a proposed sale alternative does show a negative return, the decision maker will justify the reason for commencing with the project. Because there are often positive effects on other resource values such as habitat and access for recreation opportunities, there is no mandate for projects to be profitable. Timber sale projects are put out for competitive bid of what the market will bear for a given quality of timber. Bidders must bid above a base appraised price before a contract will be awarded. Therefore, construction of roads and timber sales on national forests are not subsidized.

**962. The Forest Service should evaluate the impacts of national forest timber on local markets and pricing.**

Local timber market conditions are analyzed in the Forest's Timber Supply and Demand Analysis that was done during the Analysis of the Management Situation (AMS). This document is part of the Process Record and gives the Forest a background for their role in the local market and possible effects on pricing. Such characteristics as growing stock, the Forest's relative share of the total market area of all ownerships, growth-drain ratios to understand if growth exceeds harvest, and Forest Service dependant mills are some of the things this analysis discusses. The summary of the timber analysis in Appendix B for the FEIS has been expanded.

**963. The Forest Service should disclose the instructions and rationale for the data collection direction given to address timber production and management costs.**

Purchaser road credits and the "interest and penalties paid by the purchaser through the life of a sale" were not included in the estimates of the timber revenues used in the SPECTRUM model or the present net value calculations. The Forest Service no longer uses purchaser road credits and therefore they were not a part of the analysis. The total costs of constructing and re-constructing timber roads were included as a cost to the timber program, outside of the Spectrum model. The coefficients used for road costs have been added to Appendix B. Temporary road costs are part of the costs used to determine the "stumpage value" of the timber, which is a "net" figure. So while there are no explicit temporary road costs in the analysis, they are accounted for through the reduction in the "net revenue" (or stumpage value) figure used in the economic analysis.

**964. The Forest Service should consider that the PRLMP violates provisions of the National Forest Management Act by not modeling any non-timber outcomes of the action alternatives presented in the DEIS.**

The desired conditions of the management prescription allocations defined the interactions of the various resources, and what types of actions were compatible or incompatible with each other. Different models were then used to estimate the outcomes of meeting these desired conditions. Spectrum was just one of the tools used in this analysis. It is agreed that Spectrum was used primarily as a model to estimate timber-related outputs to meet vegetation management objectives, therefore only timber-related costs and benefits were included in the model. However, those outputs were then used to estimate effects on other resource values. A sediment model was built which included information from the Spectrum model. Likewise, wildlife effects models were used that included information from Spectrum and from GIS-based analyses. Recreation estimates were based on information from the National Visitors Use Monitoring Survey. Social and economic models were used that incorporated the results of all of these models to estimate jobs, income, and the present net value of the alternative. Chapter 3 of the EIS presents the physical, biological, economic and social effects of all management actions on the resources that we can quantify and numerous tables throughout the chapter compare those effects across the alternatives. As decision-maker, the Regional Forester will consider the resource trade-offs and opportunity costs associated with each alternative.

## IMPLAN MODEL

**965. The Forest Service should better explain, in appendix b and the relevant DEIS sections, the IMPLAN model**

**966. The Forest Service should better explain the use of the IMPLAN model and the employment and income impacts of the separate alternatives.**

Regional economic models dealing with input-output analysis are very complex. Detailed procedures for IMPLAN can be found in "IMPLAN Professional User's, Analysis Guide and Data Guide", Minnesota IMPLAN Group, Inc., 1997, which is part of the process records. The process records contain the detailed information. However, the general overview in Appendix B has been expanded to better explain assumptions and to show how the impact results were generated for each resource or activity on the Jefferson NF.