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Region

Malheur Wild
Scenic River

Management Plan

1993

Malheur Wild and Scenic River

Management Plan

Deciding Official:

Mark A. Boche
Malheur National Forest
139 NE. Dayton Street
John Day, OR 97845

For Further Information:

L.J. Sloan, Planning Staff Officer
Malheur National Forest
139 NE. Dayton Street
John Day, OR 97845

MALHEUR WILD AND SCENIC RIVER MANAGEMENT PLAN

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MANAGEMENT AREA 22B (3,758 acres) MALHEUR WILD AND SCENIC RIVER

INTRODUCTION

The Wild and Scenic Rivers System was established by Congress in 1968 to provide nationwide protection for outstanding rivers. Rivers designated by the Wild and Scenic Rivers Act are free flowing and possess at least one outstandingly remarkable value.

Rivers designated under the Act are classified as wild, scenic, or recreational, depending upon the level of development of the river and condition of adjacent lands. Wild rivers are defined as rivers free of impoundments and generally inaccessible except by trail, with primitive shorelines and unpolluted waters. Scenic rivers are also defined as rivers free of impoundments, with shorelines still largely primitive and undeveloped, but accessible in places by roads.

Forty rivers in the State of Oregon were added to the Wild and Scenic River System in 1988 with the passage of the Omnibus Oregon Wild and Scenic Rivers Act of 1988 (P.L. 100-577). Twelve miles of the Malheur River were designated, with both wild and scenic segments. The Act specified that comprehensive management plans be prepared. These management plans replace management direction in the Malheur National Forest Land and Resource Management Plan (LRMP) for the Malheur River (Management Area 22, Wild and Scenic River).

1. Description

The Malheur Wild and Scenic River is completely on National Forest Land. The designated river is 12 miles long, with six miles wild classification and six miles scenic classification. See maps in Appendix E (Malheur Wild and Scenic River Environmental Assessment) pages I-2 and II-2.

The management area for this river is defined by a river corridor boundary of varying distances from the river. This boundary was established in 1990. There are 3,758 acres within this corridor, 797 acres in the scenic segment, and 2,961 acres in the wild segment. The river corridor encompasses 1,070 acres in Harney County and 2,688 acres in Grant County. The lands within the corridor are considered entirely within one management area of the Forest, Management Area 22B. Overlap of management areas is inevitable. For instance, the river shorelines are included within Management Area 3A, Non-Anadromous Riparian Areas. For more information, see the description of Management Area Direction, p. IV-46 of the LRMP.

The outstandingly remarkable values for this river are scenery, geology, wildlife habitat, and history. These values were identified by Congress and/or confirmed through a resource assessment process. The Resource Assessment is in Appendix D.

The river corridor is generally characterized by a rugged and steep canyon ranging from 300 to 1000 feet deep. The canyon geology is evident in the various rock outcrops, talus slopes and cliffs created by erosion as the river cut through many layers of volcanic material, the Strawberry Formation, deposited between 12 and 15 million years ago. The geologic formations of the corridor contribute to the scenic diversity of the landscape.

The scenery of the river corridor is composed of combinations of water, landform, variety and color of vegetation, and interesting old-growth tree stands. For the most part, evidence of man's presence within the canyon is limited. Scenic vistas from the canyon rims and views up and down canyon from the river are spectacular.

Wildlife habitat of the corridor is unique and important because of relatively undisturbed conditions, the high quality habitat components, and its location which provides connectivity between the Blue Mountains and Great Basin physiographic provinces and between adjacent lands above the canyon rims.

The historic value of the river corridor centers around the early logging practices which occurred there. Remains of an old splash dam, logging camps, and numerous high stumps attest to early economic importance of the river and corridor to settlers of northern Harney County around the turn of the century.

2. Goals

Protect and enhance the scenic, geologic, wildlife habitat, and historic values of the river corridor. Preserve the free-flowing conditions of the river. Provide facilities for recreation use and access which do not detract from the planned recreation opportunity settings. Provide for improvements in water quality and native fish habitat. Use the corridor as a setting for interpreting area history to visitors.

3. DESIRED FUTURE CONDITION

The following section describes, by resource area, what the future river corridor should be like if the management direction contained in this management plan is implemented. It summarizes the anticipated physical changes which would result from carrying out planned management practices at two times: at the end of 10 years, and at the end of 50 years (RPA planning horizon).

Scenery

After 10 years:
Visitors continue to see large-diameter trees, some multi-storied forests, and grasslands bisected by the shrub-lined, clear-flowing Malheur River.

The scenic river segment of the corridor has a natural or near natural appearance. Where timber harvest has occurred, trees are in clumps, groups, or naturally spaced. Stumps are flush-cut to the ground and, therefore, not evident.

The appearance of the wild segment of the river corridor will be natural. Alterations in the landscape from management activities are not evident. There is less uniformity and evenness; a coarser texture is provided in areas with dead trees. The old-growth character of the river corridor has been maintained.

After 50 years:
A natural-appearing mosaic of vegetation, with varying textures and openings created through natural cycles, is evident. Only subtle changes in the appearance of the landscape are noticeable.

Ponderosa pine is still the dominant overstory tree species within the river corridor. Large-diameter pine are common, but less evident than in the past. A mixture of fir or lodgepole pine is dominant on some sites. The river corridor continues to provide an old-growth character setting.

In the wild segment, where timber harvest has not occurred, the appearance of the corridor is dominated by large-diameter trees, some multi-storied forest, and grasslands. Areas of dead trees have increased the texture of the natural landscape.

Effects of fire are periodically evident. The health and vigor of timbered stands have been maintained with prescribed fire. Visual fire effects, such as charred logs and bark, are moderately evident in some places.

Fisheries and Watershed

After 10 Years:
Populations of redband trout, whitefish, and all native non-game fish species have been maintained. An increase in the amount of in-channel, large, woody debris provides more structural habitat diversity for resident fish, especially trout. Large pool, scour pool, and pocket pool habitats have been maintained or increased throughout the corridor.

Increased streamside vegetation, both grasses and grass-like plants and hardwoods, has improved both streambank stability and shading.

Spawning habitat for trout populations has been maintained. Management-generated pollutants such as sediment, turbidity, and bacterial contaminants have been reduced.

After 50 years:
All riparian areas in less than desirable condition will be improved to provide for all riparian-dependent resources and will be in satisfactory condition. Streamside vegetation will be more diverse and abundant with native species. Increased streamside vegetation, especially sedges and hardwoods, has increased both streambank stability and shading. Ninety percent of the streambanks are in stable condition. Streambank vegetation has increased to 90 percent of site potential. Shrub cover will have increased, and presently ranges from 40 to 80 percent, depending upon site potential.

In-channel, large, woody debris has increased to about 150 pieces per mile throughout the corridor. In the reach below Malheur Ford, the large woody debris component has been maintained.

Populations of redband trout, whitefish, and all native non-game species have increased. Bull trout are now found in portions of the river. There has been a gradual increase in watershed conditions. Management-generated pollutants such as sediment, turbidity, and bacterial contaminants have been reduced. Water quality is high.

Wildlife

In 10 and 50 years:
The Malheur Wild and Scenic River corridor remains an ecologically diverse area. It continues to provide exceptional wildlife habitat for a great many species. Management activity has occurred at lower levels than surrounding areas.

The corridor continues to provide connectivity between the Great Basin and Blue Mountains physiographic provinces. It is used as a major travel route by many wildlife species and provides an avenue for genetic dispersal, which increases

sustainability. Management for biological diversity has maintained horizontal and vertical structure perpetuating a wide variety of habitat types.

Habitat has been protected for the many species inhabiting the river corridor. Potential habitat for proposed, endangered, threatened, or sensitive species will continue to be provided.

About 1,350 acres will be managed for old-growth habitat. Old-growth ponderosa pine forests will have 8-15 trees per acre larger than 20 inches in diameter, and will contain a few large fallen trees per acre. Mixed conifer old growth will have more large-diameter trees (15 inches or greater) and downed logs of all sizes, and will have a multi-storied appearance.

Riparian habitats are in satisfactory condition. Riparian vegetation composition will be more characteristic of the potential vegetation of the sites. Generally, hardwood species are more dominant; trees and shrubs provide additional canopies in the riparian zones.

Non-forested areas are generally unchanged in appearance; they are occupied by grasses, forbs, and shrubs. Mountain browse species such as bitterbrush, mountain mahogany, and serviceberry are significant on sites which support them. These species provide browse and hiding cover for large animals and nest sites for songbirds.

Habitat is provided to meet 100 percent of the potential population levels of cavity excavators and nesters.

Where permitted by site potential, cover for big game is optimum. It includes a high proportion of satisfactory to marginal cover. Hiding cover is abundant and big-game forage is available in areas where early-seral conditions are present and the regeneration of trees is occurring.

Populations of wildlife are generally unchanged from the existing, but there will be some small increase in passerine birds and other riparian associated species.

Timber

After 10 years:
The general ecological condition for the mixed conifer and ponderosa pine association stands is more stable, moving toward conditions which prevailed before the suppression of fires.

After 50 years:
These stands have reached a stable ecological condition similar to that found by early European settlers. On some sites, frequent low-intensity fires have controlled encroachment by shade-tolerant, climax species such as white fir.

Seral species such as ponderosa pine and western larch have become established on some sites now occupied by climax species. Large-diameter ponderosa pine now dominate the overstory in many areas of the corridor. These stands have an open, park-like appearance with pinegrass/sedge the dominant vegetation in most understories.

In areas where existing stand conditions preclude the use of prescribed fire to achieve objectives, and in the absence of timber management, the loss of some overstory trees has occurred through time.

Range Forage Conditions

After 10 Years:
Improved livestock management has resulted in the presence of a broader mix of successional species within the corridor, and plant communities now represent later seral stages.

Overall plant vigor has increased. Range forage condition will probably decrease in some riparian areas where grasses have been suppressed by increasing shade from alder, dogwood, and willow. Deposits of sediments trapped as streamside vegetation recovers have contributed to this decline.

The maximum riparian utilization standards of 45 percent for grasses and grass-like plants and 40 percent on shrubs are being met by livestock and wildlife, whose populations are within the carrying capacity.

There are few conflicts between recreation users and cattle.

After 50 years:
The broad mix of successional species dominance of late-seral ecological communities continues. There is sustained production of both palatable and non-palatable species for grazing by livestock and wildlife.

Riparian vegetation is in satisfactory condition and at near site potential for late-seral ecological plant communities. Livestock and wildlife utilization of forage in the corridor does not exceed standards, and animal populations continue to be within the carrying capacity.

There are few conflicts between recreation users and cattle.

Fire

After 10 years:
Prescribed burning to enhance scenic values and improve wildlife habitat has reduced fuel loadings.

After 50 years:
The condition of fuels in the corridor is such that ignitions generally do not produce flame lengths longer than 4 feet, allowing direct attack by hand crews. Fuel loadings have been reduced and are maintained at the following average levels: in stands dominated by ponderosa pine, 7-PP-3; in mixed conifer stands, 1-MC-4; and in lodgepole pine stands, 3-LP-3.

An average of two to five logs per acre, at least 12 feet long and 10 inches in diameter at the small end, have been left on the ground and contribute to wildlife habitat. The fuel profiles listed above include these logs scattered on the ground.

Prescribed fire has been used to improve wildlife habitat and enhance visual quality, primarily in areas where frequent periodic fires were historically part of the ecosystem. This has reduced fuel loadings and re-established species compositions

which existed prior to the fire suppression era. Wildfire may now play a more natural role in the river corridor.

Recreation

In 10 and 50 years:

Semi-primitive, Non-motorized ROS Class

The river corridor, with the exception of the two Forest camp areas, provides a setting where future generations may still experience a feeling of being in an area unaffected by management activities. Scenic beauty continues to be enjoyed in natural and natural appearing settings.

Visitors encounter little evidence of other users. Topographic and vegetative screening have been used to separate dispersed campsites. Opportunities for solitude and a feeling of independence and closeness to nature are high.

On-site controls and restrictions are subtle. Contact with administrators is infrequent. Forest camps are located outside the corridor. Because of a lowered maintenance level, the Malheur River Trail has declined and travel within the wild segment of the corridor is more difficult. Access to the corridor is limited to foot, horseback, and mountain bike travel.

Roaded Natural ROS Class

The areas around Malheur Ford and Burnt Bridge Forest Camps provide settings where people continue to derive satisfaction from visits to a relatively remote river corridor where natural conditions have been only slightly altered by management activities. Visitors continue to enjoy the scenic beauty of the river corridor.

There is moderate evidence of human activities and structures. Roads and motorized vehicles are common in the area. Campsites are heavily used. The opportunity to experience solitude by camping out of sight and sound of other parties is usually moderate, but low during hunting season.

Signing and public education programs enhance the experiences of visitors and provide for better resource protection. Management presence and regulations will affect visitor behavior.

4. Standards and Guidelines

RESOURCE ELEMENT

STANDARDS

The Forest-wide management direction included in Chapter IV, Section E of the Forest Plan applies to this management area except where superseded by the following standards:

FOR THE ENTIRE RIVER CORRIDOR:

Recreation

1. Manage dispersed recreation for goals of semi-primitive, non-motorized or roaded natural recreation, depending upon the segment of the corridor. Manage recreation use to provide a low incidence of contact with other groups and individuals. Recreational boating on the river is not encouraged.

Roads/Trails

2. Manage roads and trails to ensure the ROS goals, objectives, and setting criteria for this management area are met. Take actions necessary to maintain an appropriate setting.

3. Distribute dispersed recreation use as necessary to protect river values within the ROS classification. Use the "Limits of Acceptable Change" process to determine management actions necessary to preserve natural river environments.

4. Maintain existing trails to minimum standards necessary for planned use.

5. Manage trails for non-motorized recreation use.

6. Construct or reconstruct trails to be consistent with management area objectives, accommodate increased use, ensure public safety, and reduce environmental damage. Motorized equipment and vehicles may be authorized by the District Ranger for trail maintenance and construction and for limited off-road administrative use; schedule this work during low-use periods.

Fisheries/ Watershed

7. Fisheries and watershed improvement projects are allowed which simulate natural processes and use native materials. "Hard" structures such as engineered weirs and bank armoring are prohibited.

8. The removal of large, woody material from within the high water channel of the river is prohibited.

9. Adopt Management Area 3A (non-anadromous riparian areas) standards and guidelines for riparian areas in the corridor unless superseded by these standards.

Wildlife

10. Old-growth habitat within the corridor will be maintained or enhanced. Though not suitable for timber management, cultural practices including cutting trees will be allowed. Wildlife and scenic value objectives will determine the specific cultural practice(s).

11. A minimum of 300 acres of old-growth habitat, which meets the Regional definition and management requirement direction, must be maintained at any one time.

12. Habitat will be provided to meet 100 percent of the primary cavity excavating and nesting bird populations.

Fire Management

13. Because of the sensitivity of the wild and scenic river corridor, measures will be taken to minimize the effects of fire suppression activities (including "light hand on the land" tactics). Bulldozers and other heavy equipment use should be avoided; but if deemed necessary, a District resource advisor will be assigned to prevent any unnecessary damage to riparian areas and other sensitive sites.

14. To reduce the amount of cutting, the use of long-line sling loads or existing openings will be encouraged instead of clearing new helispots.

15. In all cases, the appropriate suppression response as described for Management Area 22b and Management Area 14 (Visual Corridor) in the Fire Management Action Plan, in addition to the above constraints, will be initiated for each start.

Utility Corridors

16. Manage this area as a Category 1 Avoidance area for the location of utility corridors.

Other

17. Construction of water supply dams, diversions, straightening, rip-rapping, and other modifications of the river will generally not be allowed. Hydroelectric power facilities, flood control dams, and levees are prohibited. Under Section 7(a) of the Wild and Scenic Rivers Act, the Forest Service must determine whether a proposed water resources project has a "direct and adverse effect on the values for which such river was established." Following the Regional guidelines (Appendix H.), a Section 7(a) analysis will be completed for any project affecting the flow, bed, or banks of the river. The outcomes of the analysis should clearly demonstrate a compelling need for the project and consistency with achieving DFCs for it to continue.

FOR THE AREA OF THE CORRIDOR IN THE SCENIC SEGMENT TO BE MANAGED AS SEMI-PRIMITIVE, NON-MOTORIZED ROS (Outside the Forest Camps):

Roads/Trails

18. Limited, temporary road construction is allowed for timber harvest.

19. Prohibit motorized vehicle use off Forest System roads and trails except snowmobiles operating on snow. Rare exceptions for emergency or administrative use may be authorized by the District Ranger.

20. Maintain existing roads to accommodate a variety of vehicle use including passenger vehicle use, and high-clearance, four-wheel, and off-road vehicles in accordance with the Forest Road Management Plan.

21. Over-the-snow vehicle use is allowed when snow depth reaches 6 inches.

Minerals

22. Provide minimum access for exploration and development of mineral resources. However, allow new road construction only where a road is necessary for the next logical developmental stage of the mineral resource, and where other means of access (such as by helicopter, all-terrain vehicle, or pack animal) would be infeasible or unreasonable. Roads will be constructed to the minimum standards suitable for the proposed use, and will be obliterated and rehabilitated after completion of activities.

Visuals

23. The visual quality objective is retention; however, structures and facilities necessary to meet the objectives of this management area may meet partial retention.

Timber

24. There are 201 acres of this segment of the corridor classified as "suitable" for timber management; however, no harvest will be scheduled from these lands.

Harvest will be allowed for purposes such as improving wildlife habitat or enhancing scenic values.

FOR THE AREA OF THE CORRIDOR IN THE SCENIC SEGMENT TO BE MANAGED AS ROADED NATURAL ROS (Burnt Bridge and Malheur Ford Forest Camps):

Roads/Trails

25. Prohibit motorized vehicle use off Forest System roads and trails except snowmobiles operating on snow. Rare exceptions for emergency or administrative use may be authorized by the District Ranger.

26. Maintain existing roads to accommodate a variety of vehicle use including passenger vehicle use, and high-clearance, four-wheel, and off-road vehicles in accordance with the Forest Management Plan.

27. Close primitive roads to motorized travel when the surface would be damaged to the degree that resulting runoff into the river would exceed sediment yield threshold limits.

28. Limited temporary road construction is allowed for timber harvest.

Minerals

29. Provide minimum access for exploration and development of mineral resources. However, allow new road construction only where a road is necessary for the next logical developmental stage of the mineral resource, and where other means of access (such as by helicopter, all-terrain vehicle, or pack animal) would be infeasible or unreasonable. Roads will be constructed to the minimum standards suitable for the proposed use, and will be obliterated and rehabilitated after completion of activities.

Visuals

30. The visual quality objective is retention; however, structures and facilities necessary to meet the objectives of this management plan may meet partial retention.

Timber

31. Exclude scheduled timber harvest. Lands are classified as unsuitable for timber management.

FOR THE WILD SEGMENT OF THE CORRIDOR, TO BE MANAGED AS SEMI-PRIMITIVE, NON-MOTORIZED ROS.

Roads/Trails

32. No roads or other provisions for overland motorized travel will be permitted within the designated corridor.

33. Prohibit motorized vehicle use off Forest System roads. Rare exceptions for emergency or administrative use may be authorized by the District Ranger.

34. Trails will be managed for non-motorized use.

Minerals

35. New mining claims and mineral leases are prohibited within one-quarter mile of the river.

36. Within the corridor but outside the 1/4 mile minerals withdrawal area, provide minimum access for exploration and development of mineral resources. How-

ever, allow new road construction only where a road is necessary for the next logical developmental stage of the mineral resource, and where other means of access (such as by helicopter, all-terrain vehicle, or pack animal) would be infeasible or unreasonable. Roads will be constructed to the minimum standards suitable for the proposed use, and will be obliterated and rehabilitated after completion of activities.

Visuals 37. The visual quality objective is preservation; however, if structures and facilities are necessary to meet the objectives for this management area, they may meet partial retention.

Timber 38. Exclude timber harvest. Lands are classified as unsuitable for timber management.

Facilities 39. Facilities such as shelters and toilets are located outside the wild river segment.

5. Schedule of Management Practices

Administration costs for this wild and scenic river are estimated to be $10,000 per year. Appendix H (Table H-1) of the LRMP displays information included in the budget proposal submitted for the Malheur National Forest in Fiscal Year 1992. Operation and maintenance of improvements within the river corridor (trails, trailheads, dispersed campsites, roads, etc.) and the general administration of different functional areas (range administration, wildlife management, fire management, recreation management, etc.) and overhead costs are included in that table.

The following tables lists projects identified to date needed to implement this river management plan. Project level analysis will need to be conducted before the decision to implement any proposed action is made. Therefore, this table is not a list of targets but can be considered a list of opportunities identified to date, which is likely to be implemented during the next 10 years, pending receipt of funding.

FISH AND WILDLIFE PROJECTS

PRIORITY	OUTPUTS	ESTIMATED COSTS	PROJECT DESCRIPTION
1	60 trees	$9,000	Trees will be placed in the river providing large woody debris, improving fish habitat.
2	10	$300	Install 10 bird boxes at dispersed campsites.

ECOSYSTEM MANAGEMENT PROJECTS

PRIORITY	OUTPUTS	ESTIMAT-ED COSTS	PROJECT DESCRIPTION
1	800 acres	$80,000	Broadcast burn in old-growth habitat areas.
2	50 acres	$25,000	Silviculturally treat stands in scenic section with stocking control indicated by thinning, harvesting, and planting.
3	1 AMP	$10,000	Data collection, analysis, NEPA, preparation of Star Glade Allotment Management Plan.
4	1 AMP	$20,000	Data collection, analysis, environmental assess-ment, and preparation of the Bluebucket Allotment Management Plan.

RECREATION AND TRAIL PROJECTS

PRIORITY	OUTPUTS	ESTIMAT-ED COSTS	PROJECT DESCRIPTION
1	2	$25,000	Trailhead reconstruction at Malheur Ford.
2	1	$1,500	Early logging history interpretive site development at Malheur Ford.
3		$30,000	Install new toilets at Malheur Ford and Burnt Bridge Forest Camps.

RANGE MANAGEMENT PROJECTS

PRIORITY	OUTPUTS	ESTIMATED COSTS	PROJECT DESCRIPTION
1	.5	$2,500	Construct fence across Miller Flat Creek drainage along river corridor boundary.
2	1 mile	$8,000	Install cattle guards and construct fence around Malheur Ford Forest Camp.
3		$2,500	Develop water sources for cattle on Bluebucket and Dollar Basin Allotments.
4	.25	$3,750	Install fence and gate at Hog Flat Trailhead on Malheur River Trail.
5	.5	$3,000	Construct fence on the bench in Section 20 on Bluebucket Allotment to keep cattle from drifting down the river.
6	.25	$1,650	Construct drift fence with gate across drainage below Mike Acton Spring.
7		$1,700	Install water trough in Dollar Basin (T. 17 S., R. 33 E. 1/2 E. Sec. 24.)
8		$500	Install water trough on Star Glade Allotment, T. 17 S., R. 33 E. 1/2 E. Sec. 3.

6. Monitoring Plan

Listed below is the monitoring strategy for Management Area 22B, Malheur Wild and Scenic River. The intent of a monitoring program is to ensure the resources are managed in a manner consistent with their protection (and function). This monitoring strategy identifies the key ecosystem elements to be tracked during plan implementation in order to determine if the objectives of this river management plan are satisfied. The monitoring prescribed in this plan is in addition to the extensive Forest-wide monitoring already prescribed in the Malheur National Forest Land and Resource Management Plan, of which this river management plan is an amendment.

Monitoring is defined as the repeated gathering and recording of pertinent information for comparison and evaluation of plan objectives as well as standards and guidelines. Based upon the results of this comparison and evaluation, the interdisciplinary team may recommend to the Forest Supervisor changes in management direction, amendments, or revisions to this plan which are deemed necessary.

MONITORING QUESTIONS FOR MALHEUR WILD AND SCENIC RIVER CORRIDOR MONITORING ITEMS

Resource (Emphasis) Area	Monitoring Question (Objectives)	Measured Action	(Probable) Methods	Unit(s) of Measure	Frequency	Data Location	Responsible Party (Data Collection/ Evaluation	Estimated Annual Cost
Scenery	1) Are scenic values being maintained in project implementation?	Visual effects of projects, as predicted	Field review of completed project	VQO criteria	Annually or as needed at project implementation	GIS database (VQO layer and flat file)	District Ranger / Recreation Staff Officer	$2000/yr
	2) Are scenic values being enhanced in river segment?	Visual quality progress towards DFC	Field review for enhancement opportunities/ photo points	Changes in visual quality over time	At 5-year intervals	GIS database (VQO layer and files)	District Ranger / Recreation Staff Officer	$2000/5 yrs
Wildlife & Scenery	1) Are old-growth characteristics being maintained consistent with desired conditions?	Structural and functional vegetation composition (including: spp, density, amount and distribution	Old-growth examination procedure (following W-W protocol?)	Plant types, tree sizes, numbers, down woody mat'l	10-yr intervals, or as needed	GIS attribute database and 2600 files	District Ranger / F&W Staff Officer	$3000/10 yrs
Range	Is forage utilization within standards?	Amount of utilization	Allotment inspection (report) before and after livestock use	(Refer to Forest Plan)	Annually	2200 files	District Ranger / Range Staff Officer	$5000/yr

MONITORING QUESTIONS FOR MALHEUR WILD AND SCENIC RIVER CORRIDOR MONITORING ITEMS (continued)

Resource (Emphasis) Area	Monitoring Question (Objectives)	Measured Action	(Probable) Methods	Unit(s) of Measure	Frequency	Data Location	Responsible Party (Data Collection/ Evaluation	Estimated Annual Cost
Fisheries & Watershed	1) How are riparian elements of DFCs changing through time?	Riparian elements of: structure, function, distribution, coverage	Kovalchick's classification system, Hankin and Reeves survey(s)	Shade (vegetation coverage), streambank stability, large woody debris, channel morphology	Every 10 years	GIS/District data files	District Ranger / Forest Fish Biologist	$10,000/yr
	2) What are water temperatures within the drainage?	Therms of energy (caloric)	Continuously recording thermographs	Degrees F	Annually at specified intervals with June 15 - September 15	Watershed Database	District Hydrologist/ Forest Hydrologist	$1000/yr
	3) What are sediment and turbidity levels?	Sediment/ turbidity	Mechanical sampler	-ppm, turbidity units, or opaqueness cross-check	Annually (May 1 - October 1)	District datatable	District Hydrologist/ Forest Hydrologist	$2000/ 1st 3 years $1000/ 4+ years
	4) What other pollutants are present within the river?	-Bacterial contaminants, pH (characteristics), -phosphate	Grab samples (and analysis at contract labs)	-ppm, -pH (ionic concentration)	Annually or as needed	District PC Database	District Hydrologist/ Forest Hydrologist	$1000/yr

Other Wild and Scenic River Corridor Monitoring Items

1. Items discussed in this river management plan, but not discussed in the above strategy, are included in the overall Monitoring Plan and program of work for the Malheur National Forest.

Wildlife	Primary cavity excavator and nesting bird habitat (dead and defective tree habitat): see monitoring item 12.
	Big-game habitat: see monitoring item 13.
	Bald eagle nesting and roosting habitat areas: see monitoring item 15.
Fisheries and Watershed	Native fish populations, including Bull trout and resident fish habitat: see monitoring item 10.
Recreation	Recreation experiences: see monitoring items 4 and 9.

2. Monitoring items beyond the scope of the Malheur National Forest:

-Wildlife habitat effectiveness and validation monitoring, which is being coordinated at the sub-regional level (i.e., Blue Mountains physiographic zone).

-Management practices, such as the effectiveness of Best Management Practices (BMPs).

Lastly, the annual monitoring program will be contingent upon available funds. This funding will ultimately determine the monitoring program priorities and resulting information flow.

Appendix A

DECISION NOTICE

DECISION NOTICE

AND

FINDING OF NO SIGNIFICANT IMPACT

MALHEUR WILD AND SCENIC RIVER

ENVIRONMENTAL ASSESSMENT

And

MALHEUR NATIONAL FOREST LAND AND RESOURCE MANAGEMENT PLAN

AMENDMENT NUMBER 14

Grant and Harney Counties, Oregon
USDA Forest Service
Malheur National Forest
Burns and Prairie City Ranger Districts

Background

The Malheur River was designated as a wild and scenic river in the Omnibus Oregon Wild and Scenic Rivers Act of 1988. The Wild and Scenic Rivers Act directs the Forest Service to develop a comprehensive management plan for the designated river corridor which will preserve the freeflowing character of the river, protect water quality, and provide for the protection or enhancement of the outstandingly remarkable values it contains. Congress identified scenery as an outstandingly remarkable value.

A Resource Assessment was completed in January 1992. It was determined in this assessment process that geologic, historic, and wildlife habitat were also outstandingly remarkable values, and verified the finding by Congress that scenery was an outstandingly remarkable value. Therefore, the outstandingly remarkable values for the Malheur River are scenic, geologic, historic, and wildlife habitat.

The Omnibus Oregon Wild and Scenic Rivers Act (Public Law 100-557) of October 28, 1988, designated the Malheur River, Oregon, from the mouth of Bosonberg Creek to the Malheur National Forest boundary, as a National Wild and Scenic River, to be administered by the Secretary of Agriculture. The Forest Service has delineated river corridor boundaries for the Malheur Wild and Scenic River as required by the Wild and Scenic Rivers Act.

The decision on delineation of river corridor boundaries, based upon an Environmental Assessment, was signed on March 3, 1990, by John F. Butruille, former Regional Forester. A subsequent appeal of this decision was withdrawn, based upon the agreement that the boundary decision would be reviewed after completion of a second Resource Assessment for the river.

The second Resource Assessment, completed in January 1992, indicated that the boundary is adequate for protecting the outstandingly remarkable values. The river corridor encompasses approximately 3,758 acres which is less than the maximum allowed by the Wild and Scenic Rivers Act (313 acres per river mile versus the limit of 320 acres per river mile in the Act).

The northern terminus for the river corridor defined in the Act, the mouth of Bosonberg Creek, is on private land and is about 200 yards north of National Forest land in Logan Valley.

The Act specified an interim boundary of 1/4 mile on either side of the river until the final boundary was established. The interim boundary included about 40 acres of private land outside the Forest boundary to the south and about 27 acres below the mouth of Bosonberg Creek.

The boundary decision made in 1990 excluded these private lands from within the river corridor. Because the Act specified the mouth of Bosonberg Creek as the northern terminus of the designated river, a minor amendment to the Act will be proposed to Congress which will define the northern terminus as the point where the river enters National Forest land in Section 2, T. 17 S., R. 33 1/2 E., W.M.

The designated river is 12 miles long. The upper 6 miles above Malheur Ford is classified as scenic and the lower 6 miles below Malheur Ford as wild.

Decision

This Decision Notice designates the management strategy for the Malheur Wild and Scenic River. This management strategy will be incorporated into the Malheur Wild and Scenic River Management Plan.

This is a programmatic decision. The management plan will provide general direction for management of the river corridor. In other words, it will permit and prohibit certain things to happen in the future. For future activities and projects allowed in the management plan, site-specific environmental analysis will be conducted to determine environmental effects and to help make these site-specific decisions.

It is my decision to implement Alternative 5 as described in the environmental assessment, with modifications. Alternative 5 as modified provides the best mix of management options that meet the requirements to preserve the freeflowing character of the river, protect water quality, and protect/or enhance the outstandingly remarkable values of the river and corridor.

I am establishing a new Management Area, MA 22b (Wild and Scenic River - Malheur River). This new Management Area replaces Management Area 22 in the Malheur National Forest Land and Resource Management Plan (Forest Plan) for the Malheur River Corridor.

I am retaining the boundary as established in 1990. This boundary is positioned in a manner that adequately protects the outstandingly remarkable values found within the river corridor.

This decision will amend specific parts of the Forest Plan, in order to implement Alternative 5 as modified.

Alternative 5 as modified and the Forest Plan amendment are detailed below along with the reasons for my decision.

Tiering

The Malheur Wild and Scenic River Environmental Assessment (EA) documents the analysis of management strategies for the river and designated corridor. The Malheur Wild and Scenic River EA is tiered to the Final Environmental Impact Statement for the Malheur National Forest Land and Resource Management Plan (1990). I have reviewed the EA and associated documents. My decision is based upon that review.

The EA and associated documents are available for review at the Malheur National Forest Supervisor's Office, John Day, Oregon.

Location of the Scenic River

The Malheur Wild and Scenic River designation begins on Forest Service land in the southern part of Logan Valley and ends downstream at the Forest boundary. The total length of the river is 12.0 miles. There are approximately 2,688 acres within the river corridor in Grant County and 1,070 acres in Harney County. The entire area is National Forest Land.

The river and corridor are located in Sections 8, 9, 10 and 15 of T. 18 S., R. 34 E.; Sections 7, 17, 18, 20, 28, 29, 32, and 33 of T. 17 S., R. 34 E.; and Sections 2, 11, 12, and 13 of T. 17 S., R. 33 1/2 E., W.M.

Description of Alternative 5 with Modifications

The objectives of the selected alternative (Alternative 5 with modifications) are to:

1. Provide for protection and enhancement of outstandingly remarkable scenic, historic, geologic, and wildlife habitat values.

2. Allow continuation of livestock grazing in the river corridor and provide for some timber harvest within the scenic segment as needed, while achieving Visual Quality Objectives.

3. Provide for improvement of existing recreation facilities and allow current recreational experiences to continue at existing levels. Some additional trail construction will be allowed to meet future demands.

4. Establish scenery protection, wildlife habitat, fish habitat, and recreation as the highest priority resources and uses. Timber and forage production are considered to be lower priority within the corridor.

5. Maintain the aesthetic values and wildlife connectivity of the river corridor.

6. Provide for long-term ecosystem sustainability while allowing for wise use of the river corridor.

Alternative 5 as modified is summarized briefly below:

Old-Growth Habitat: 1,350 acres of land is set aside to provide old-growth scenery and wildlife habitat. Certain activities and cultural practices are permitted to ensure the sustainability of these ecosystems.

Fisheries Management: Limited improvement projects that mimic natural processes are allowed to augment natural recovery of the river to provide better habitat for native fish populations. No engineered "hard" improvement structures are allowed. To protect fish habitat, the removal of large woody debris (logs) from the river is prohibited.

Wildlife Habitat Management: Both structural and non-structural habitat improvement projects are allowed in the scenic segment. In the wild segment, only non-structural improvements are allowed. Habitat will meet 100 percent of the potential populations of the primary cavity excavating and nesting birds.

Scenery Protection and Enhancement: The visual quality objective of the river corridor is retention in the scenic segment, preservation in the wild segment. Prescribed fire effects are considered to be natural appearing, and prescribed fire will be managed to minimize short-term effects to scenery. Necessary facilities, such as trails and toilets, and wildlife and fisheries improvement structures are allowed to meet a partial retention visual quality objective.

Grazing: Livestock grazing will be allowed as specified in the annual operating plans, which are part of the allotment management plans, and in the term grazing permits. Grazing by livestock will be conducted at levels which meet Forest Plan utilization standards. Intensive grazing management strategies will be allowed as allotment management plans are revised or developed. After site-specific environmental analysis, new fences and water developments may be constructed along the river corridor boundary, or outside the corridor, to facilitate better livestock management within the corridor and on adjacent lands.

Unsatisfactory riparian conditions currently exist within the river corridor. Forage utilization levels in these riparian areas have been exceeded in the past. Forest Plan utilization standards for these unsatisfactory areas will be enforced through the annual operating plans. Future grazing capacity in the river corridor will be as determined through the allotment management plans.

Conflicts between grazing and the protection of the outstandingly remarkable scenic and wildlife habitat values will be resolved when identified. When conflicts between recreation and livestock need to be resolved, mitigation measures will be implemented to reduce the impact on recreation.

Timber Suitability and Timber Management: 201 acres of tentatively suitable lands in the scenic segment will be classified as suitable for timber

management. No harvest will be scheduled from these lands at this time due to other management considerations; however, timber harvest may occur as necessary to meet resource management needs. Lands within the wild segment are classified as unsuitable for timber management.

Recreation Opportunity Spectrum (ROS) Class: The ROS will generally be semi-primitive, non-motorized, except for the Burnt Bridge and Malheur Ford Forest Camp areas, where it will be Roaded Natural. Snowmobile use will be allowed in the scenic segment.

Recreation Facilities Development: No new campgrounds will be constructed. Improvements to existing facilities at Malheur Ford and Burnt Bridge are allowed, which will provide a higher quality developed recreation experience and better resource protection.

Dispersed Campsites: A fence will be constructed around the Malheur Ford Forest Camp to exclude livestock. The existing campsites there and at Burnt Bridge Forest Camp may be improved, but additional capacity will not be provided. Access and dispersed camping sites within the corridor that are creating resource damage will either be improved or eliminated.

Trail Development: With the exception of snowmobile use in the scenic segment, trail use will be non-motorized only. The Malheur River Trail will be closed to motorized use through a Closure Order. Rare exceptions may be authorized for emergency or administrative.

Future trail construction within the corridor is allowed. The extension of the Malheur River Trail from Malheur Ford to Burnt Bridge and a new recreation trail down Mike Acton Spring drainage may be constructed, with a trailhead in the vicinity of Mike Acton Spring. Trail construction and maintenance levels will be determined by the ROS Class for the area.

The Prairie City and Burns District Rangers will explore these and other opportunities for rim-to-river trails and loop trail systems within and adjacent to the river corridor. These loop trails should allow for a variety of recreational experiences and difficulty levels. Any new trail construction needs will be determined after site-specific analysis is conducted in the future.

Water Quality: Water quality improvement projects are allowed which meet visual quality objectives of the area and will not affect the freeflowing river conditions. State water quality standards will be met or exceeded, and Best Management Practices will be followed for any activities which have the potential to impact water quality.

Road Management: No new permanent roads will be constructed, except as allowed for mineral entry. Temporary roads for timber harvest will generally be avoided, but may be allowed in the scenic segment after site-specific analysis, where their construction will minimize resource impacts. Improvements may be made to existing roads. Motorized travel will be limited to existing roads.

Adjacent Forest Plan Management Areas

The National Forest System Lands adjacent to the river corridor have been reviewed for effects that management of these lands could have on outstandingly remarkable values. The existing management direction and Forest Plan standards and guidelines are adequate to protect outstandingly remarkable and other river related values.

Reasons for the Decision

Throughout the planning process many people told us they liked the Malheur River the way it is. They want to see the character of the river corridor and the quality of the recreational experiences kept much the way they are now, but allow subtle improvements to existing facilities and trails.

Some members of the public are concerned about the impacts from grazing and want these impacts reduced or eliminated altogether. Alternative 5 as modified allows for better grazing management and control of cattle through the construction of fences and range improvements and the possible use of intensive grazing as a management strategy. The grazing capacity of the river corridor will not change under this decision. Grazing receipts to the counties will be unaffected.

Some members of the public are concerned about the loss of timber values and the ability to deal with forest health issues if no harvesting was to take place.

Above Malheur Ford, 201 acres of tentatively suitable lands outside the old-growth habitat and riparian areas are determined to be suitable for timber management. Unscheduled timber harvest above Malheur Ford can provide wood fiber and timber sale receipts to the counties. There will be no harvest scheduled from these lands at this time, however some unscheduled timber harvest may occur. Any harvest will capture some of the timber value and allow the management of resources, ensuring forest health recovery and ecosystem stability.

Under Alternative 5, the wide range of recreational uses will be allowed to continue with minimum regulation. Alternative 5 relies on better recreation site development to provide protection for water quality and fisheries habitat. This alternative prohibits the removal of large woody debris from the river corridor in order to protect fish habitat. This river will never provide a popular whitewater boating experience because of the number of portages and safety hazards associated with logs in the river.

Use of the river corridor as a utility corridor is prohibited. This will ensure that electronic and electric transmission lines and natural gas and other pipelines will not impact the outstandingly remarkable values of the river in the future.

The area within the scenic segment of the corridor and outside the 1/4 mile minerals withdrawal area in the wild segment of the corridor will continue to be open to mineral exploration and development under the 1872 Mining Law. Necessary and reasonable access will be provided. In making my decision, I considered proposing a minerals withdrawal on the area to the Secretary of

Interior in order to ensure protection of outstandingly remarkable values. However, I have determined that a withdrawal application is not in the best public interest at this time because very little minerals data exists, there is no history of mining activities in the corridor, and the expense of withdrawal to taxpayers is high. As the opportunity arises for a minerals potential report to be prepared, I will add it to the Forest's program of work. I will also direct that an alternative which includes a no surface occupancy stipulation in the corridor be included in the Oil and Gas Leasing EIS currently being prepared for the Malheur National Forest.

Alternative 5 as modified encourages the use of prescribed fire as a management tool to protect and enhance outstandingly remarkable values of scenery and wildlife habitat. The use of fire, over time, will address existing forest health concerns and help to achieve the desired future condition of the river corridor.

The preservation visual quality objective (VQO) in the wild segment of the corridor without an exception for prescribed fire would severely constrain management activities. It would preclude the use of prescribed fire, without a corresponding improvement in conditions. The long term protection and enhancement of scenic and wildlife habitat values would not be ensured. Therefore, prescribed fire will be viewed as natural appearing when analyzing fire effects in project planning.

The retention (VQO) in the scenic segment of the corridor will allow some stand treatments while protecting the scenic values of the river corridor. Relaxation of the VQO to partial retention as described in Alternatives 3 and 4 would allow some short-term degradation of scenic values while treating areas of the corridor. I do not feel the need exists to allow this at this time.

The riparian condition improvement rate in Alternative 5 is second only to Alternative 2. This river corridor is an appropriate place to feature rapid riparian area recovery and to demonstrate the ability to do so.

Many members of the public want to see the old-growth, timbered character of the corridor maintained.

There are unique old growth and ecosystem values involved throughout the corridor. The 1,350 acres of scenic and wildlife old-growth habitat will continue to provide the connectivity value of the corridor. Forest Service validation monitoring underway suggests that larger blocks of old-growth habitat than those currently identified in the Forest Plan may be necessary to meet old-growth habitat needs for species such as the pileated woodpecker.

This alternative manages for 100 percent of the potential populations for primary cavity excavators, thus maintaining the current high diversity of populations in the corridor. This alternative does not maximize wildlife habitat enhancement, but it does provide for high levels of habitat protection. Current habitat values are of high quality and diversity.

Prohibiting new permanent road construction will protect existing high levels of scenic beauty and wildlife habitat. The current road system provides adequate access to the river corridor and to lands adjacent to the corridor.

Alternative 5 as modified balances current high wildlife habitat diversity and connectivity with the means to sustain these over time. It will also continue to provide scenic quality through non-scheduled timber harvest (in the scenic segment), cultural practices, the quality objectives, and prescribed fire.

I feel this is the most balanced alternative relative to all of the issues, resources, and public input, and provides the appropriate balance of modifications to achieve the long-term protection and enhancement of outstandingly remarkable values. This alternative provides for total ecosystem sustainability for future generations.

Amendment Made to the Forest Plan

Amendment 14 to the Malheur National Forest Plan has seven purposes. These are:

1. Removes the area within the Malheur Wild and Scenic River corridor from Management Area 22 (Wild and Scenic Rivers).

2. Provides replacement management direction for the Malheur Wild and Scenic River corridor by establishing a new Management Area 22b (Wild and Scenic Rivers-Malheur River). This replacement direction will be contained in the Malheur Wild and Scenic River Management Plan.

3. Makes modifications to the Forest Plan and its appendices that are necessary to make the documents internally consistent with both the establishment of MA 22b and the elimination of MA 22. Specific references to be changed are on the following pages of the Forest Plan: IV-5, 8, 13, 49, 134, 135, 136, 137, 138, and 139; A-2, 4, 5, 6, and 8; B-1 and 2, E-1; and L-1.

4. Adds 201 acres as suitable for timber management.

5. Reduces the Forest's annual Allowable Sale Quantity (ASQ) by 34.2 thousand board feet on an annual basis.

6. Allows for implementation of intensive grazing management (Strategy D) within the river corridor.

7. Removes from MA 13, 593 acres (dedicated old growth unit 0324) in the central part of the corridor, which were incorrectly designated and counted as MA 13 in the development of the Forest Plan, and places them in MA 22b. Approximately 1,350 acres of the corridor will be managed to provide old-growth habitat and old-growth scenery with one desired future condition. The desired future condition for the old growth for this corridor is documented in the EA. Management prescriptions to achieve the desired future condition will be developed by site-specific analysis before any activities are implemented.

A management standard will be incorporated which specifies that a minimum of 300 acres of old-growth habitat will be provided at any one time within the corridor which meets the Regional definition and management requirement direction. This will ensure that minimum habitat requirements for old-growth associated species are provided at any point in time in the future in keeping with the old growth strategy for the Forest. It is expected that high quality

old-growth habitat well in excess of this minimum will always be present, as the old growth in the corridor is managed.

To accomplish the first purpose, I am revising the description of Management Area 22 on page IV-134 and Table IV-3 of the Forest Plan to delete references to the Malheur River.

To accomplish the second purpose I am adding a new management area, Management Area 22b. I am also incorporating by reference the desired future condition for Alternative 5 described in the EA and the standards and guidelines for MA 22b listed below.

To accomplish the third purpose I am making the necessary changes to various sections of the Forest Plan which describe the Malheur Wild and Scenic River as part of Management Area 22.

To accomplish the fourth purpose I am modifying Table B-2 of the Forest Plan which describes suitable acres on the Forest.

To accomplish the fifth purpose I am modifying Table E-1 of the Forest Plan which includes ASQ contributed from Management Area 22.

To accomplish the sixth purpose I am adding the standard and guideline for intensive grazing management described below to Management Area 22b.

To accomplish the seventh purpose I am modifying the description of Management Area 13 on page IV-105 to reduce the acreage.

Standards and Guidelines for Management Area 22b

The Forest-wide management direction included in Chapter IV, Section E of the Forest Plan applies to this management area except where superseded by the following standards, which will also be incorporated into the Malheur Wild and Scenic River Management Plan:

Recreation

1. Manage dispersed recreation for goals of semi-primitive, non-motorized recreation. Manage recreation use to provide a low incidence of contact with other groups and individuals.

Roads/Trails

2. Manage roads and trails to ensure that the ROS goals, objectives, and setting criteria for this management area are met. Take actions necessary to maintain an appropriate setting.

3. Distribute dispersed recreation use as necessary to protect river values within the ROS classification. Use the "Limits of Acceptable Change" process to determine management actions necessary to preserve natural river environments.

4. Maintain existing trails to minimum standards necessary for the planned use.

5. Manage trails for non-motorized recreation use.

6. Construct or reconstruct trails to be consistent with management area objectives, accommodate increased use, ensure public safety, and reduce environmental damage. Motorized equipment and vehicles may be authorized by the District Ranger for trail maintenance and construction and for limited off road administrative use; schedule this work during low-use periods.

Fisheries/Watershed

7. Fisheries and watershed improvement projects are allowed which simulate natural processes and use native materials. "Hard" structures such as engineered weirs and bank armoring are prohibited.

8. The removal of large woody material from within the high water channel of the river is prohibited.

9. Adopt Management Area 3A (Non-anadromous riparian areas) standards and guidelines for riparian areas in the corridor unless superseded by these standards.

Wildlife

10. Old-growth habitat within the corridor will be maintained or enhanced. Though not suitable for timber management, cultural practices including the cutting of trees will be allowed. Wildlife and scenic value objectives will determine the specific cultural practice(s).

11. A minimum of 300 acres of old-growth habitat, which meets the Regional definition and management requirement direction, must be maintained at any one time.

Fire Management

12. Because of the sensitivity of the wild and scenic river corridor, measures will be taken to minimize the effects of fire suppression activities (which includes "light hand on the land" tactics). Bulldozers and other heavy equipment use should be avoided, but if deemed necessary, a district resource advisor will be assigned to prevent any unnecessary damage to riparian areas and other sensitive sites.

13. To reduce the amount of cutting, the use of long line sling loads or existing openings will be encouraged instead of clearing new helispots.

14. In all cases, the appropriate suppression response as described for Management Area 22b and Management Area 14 (Visual Corridor) in the Fire Management Action Plan, in addition to the above constraints, will be initiated for each start.

Utility Corridors

15. Manage this area as a Category 1 Avoidance area for the location of utility corridors.

Range

16. Where intensive grazing management is in the allotment management plan, utilization of forage on the suitable range in satisfactory condition will not exceed 50% in riparian areas, 55% in non-riparian grassland communities, and 50% in non-riparian forested and shrubland communities.

Other

17. New water supply dams and diversions are prohibited.

18. Hydroelectric power facilities are prohibited.

19. Flood control dams and levees are prohibited.

For the area of the corridor in the scenic segment to be managed as Semi-Primitive, Non-Motorized ROS:

Roads/Trails

20. Limited temporary road construction is allowed for timber harvest.

21. Prohibit motorized vehicle use off Forest System roads and trails except snowmobiles operating on snow. Rare exceptions for emergency or administrative use may be authorized by the District Ranger.

22. Maintain existing roads to accommodate a variety of vehicle use including passenger vehicle use, high-clearance, four-wheel, and off-road vehicles in accordance with the Forest Road Management Plan.

23. Over-the snow vehicle use is allowed when snow depth reaches 6 inches.

Minerals

24. Provide minimum access for exploration and development of mineral resources. However, allow new road construction only where a road is necessary for the next logical developmental stage of the mineral resource, and where other means of access (such as by helicopter, all-terrain vehicle, or pack animal) would be infeasible or unreasonable. Roads will be constructed to the minimum standards suitable for the proposed use, and will be obliterated and rehabilitated after completion of activities.

Visuals

25. The visual quality objective is retention, however structures and facilities necessary to meet the objectives of this management area may meet partial retention.

For the area of the corridor in the scenic segment to be managed as Roaded Natural ROS (Burnt Bridge and Malheur Ford Forest Camps):

Roads/Trails

26. Prohibit motorized vehicle use off Forest System roads and trails except snowmobiles operating on snow. Rare exceptions for emergency or administrative use may be authorized by the District Ranger.

27. Maintain existing roads to accommodate a variety of vehicle use including passenger vehicle use, high-clearance, four-wheel, and off-road vehicles in accordance with the Forest Management Plan.

28. Close primitive roads to motorized travel when the surface would be damaged to the degree that resulting runoff into the river would exceed sediment yield threshold limits.

29. Limited temporary road construction is allowed for timber harvest.

Minerals

30. Provide minimum access for exploration and development of mineral resources. However, allow new road construction only where a road is necessary for the next logical developmental stage of the mineral resource, and where other means of access (such as by helicopter, all-terrain vehicle, or pack animal) would be infeasible or unreasonable. Roads will be constructed to the minimum standards suitable for the proposed use, and will be obliterated and rehabilitated after completion of activities.

Visuals

31. The visual quality objective is retention, however structures and facilities necessary to meet the objectives of this management plan may meet partial retention.

For the area of the corridor in the wild segment to be managed as Semi-Primitive, Non-Motorized ROS.

Roads/Trails

32. No roads or other provisions for overland motorized travel will be permitted within the designated corridor.

33. Prohibit motorized vehicle use off Forest System roads. Rare exceptions for emergency or administrative use may be authorized by the District Ranger.

34. Trails will be managed for non-motorized use.

Minerals

35. New mining claims and mineral leases are prohibited within 1/4 mile of the river.

36. Provide minimum access for exploration and development of mineral resources. However, allow new road construction only where a road is necessary for the next logical developmental stage of the mineral resource, and where other means of access (such as by helicopter, all-terrain vehicle, or pack animal) would be infeasible or

unreasonable. Roads will be constructed to the minimum standards suitable for the proposed use, and will be obliterated and rehabilitated after completion of activities.

Visuals

37. The visual quality objective is preservation, however structures and facilities necessary to meet the objectives for this management area may meet partial retention.

Facilities

38. Facilities such as shelters and toilets are located outside the wild river segment.

Monitoring Plan

The management program for the lands within MA 22b will include an extensive monitoring program. Items to be monitored will include:

Water Quality

Recreation Use and Experience Levels

Grazing Utilization

Range Condition

Old-Growth Habitat Condition

Wildlife Habitat Condition

Scenery/Visuals Condition

Fish Habitat Condition

Riparian Vegetation Condition

Insect and Disease Levels

The monitoring items for MA 22b will be incorporated in the 1992/93 Monitoring Plan for the Forest Plan, to be developed later this year.

Public Participation Process and Activities

Public participation was an integral part of the planning process. Interested citizens, groups, local governments, and state agencies were involved and contributed to the planning process. The public was formally consulted during issue scoping and preliminary alternative development.

Public involvement was conducted through news releases and radio information, public meetings, meetings with groups, and newsletters.

Two briefings were held for the Grant County Court, who then conducted a public meeting on January 15, 1992, which was attended by more than 60 individuals. A briefing for the Harney County Court (and members of the public) was held on

January 22, 1992. The Forest Service and affected range permittees met to discuss alternatives in Drewsey on January 22, 1992. A record of the discussion was kept and several letters from permittees were later received.

Alternatives Considered But Eliminated From Detailed Study

The EA describes the alternatives considered but not analyzed in detail. Some suggested alternatives were determined to be outside the scope because of the Wild and Scenic Rivers Act. Some were not responsive to one or several issues. Some were determined to be outside the scope because the Forest Service is not the responsible agency for management of the particular resource.

Alternatives Considered in Detail

The river planning team developed and analyzed five alternatives in detail in the Environmental Assessment.

Alternative 1 (No Action)

This alternative is the existing management direction for wild and scenic rivers in Management Area 22 of the Forest Plan. It projects a continuation of current management within the river corridor. This alternative also provides a baseline for comparison of the other alternatives.

Alternative 2

This alternative restricts activities to those which would least alter natural conditions. It responds to members of the public who requested an evaluation of low impact management.

Alternative 3

This alternative emphasizes recreation. An expansion of current recreational facilities and improvement of access would increase visitation from the current level.

Alternative 4

This alternative emphasizes commodity production, such as timber and forage within the river corridor, and provides for additional recreation use.

Alternative 5

This alternative provides for some grazing and timber harvest but emphasizes a balance between aesthetics and utilization of the river corridor. It was developed in response to public requests for an alternative perpetuating current levels of recreation with less scheduled timber harvest and better grazing management.

FINDING OF NO SIGNIFICANT IMPACT

Based on the analysis disclosed in the Environmental Assessment for the Malheur Wild and Scenic River, I find that this decision is not a major federal action that will significantly affect the quality of the human environment. Therefore, an environmental impact statement is not needed. This finding is based on consideration of impacts both beneficial and adverse for the following factors:

1. Public health and safety are minimally affected by the proposed decision.

2. There will be no significant irreversible or irretrievable commitment of resources. Sufficient information is available to make a reasoned choice among alternatives based on the analysis information contained in the environmental assessment and other past actions of a similar nature.

3. There will be no adverse impacts to wetlands, floodplains, other riparian areas, and dedicated old-growth areas.

4. No significant direct, indirect, or cumulative impacts to soil, water, wildlife resources, or other components of the human environment are anticipated.

5. The effects of this decision are not highly uncertain and do not involve unique or unknown risks.

6. The effects of this decision on the quality of the human environment are not highly controversial.

7. The proposed actions do not set a precedent for other projects that may be implemented to meet the goals and objectives of the Forest Plan. Activities planned in the wild and scenic river corridor will not adversely affect the environment beyond or downriver from the designated corridor.

8. Based on previous cultural resource surveys and those completed in 1989-90, cultural resource properties in this area have been identified and recorded. Future ground disturbing activities will avoid and/or mitigate known sites.

9. The Biological Evaluation and associated field surveys were completed in 1991. The Malheur Wild and Scenic River Management Plan direction is not expected to cause any significant adverse impacts to any threatened, endangered, or sensitive plant or animal species. Site-specific biological evaluations will be done for specific projects in the corridor.

10. The proposed action will be in compliance with relevant Federal, State, and local laws, regulations, and requirements designed for the protection of the environment. The proposed action will meet state water and air quality standards.

In accordance with Executive Orders 11988 and 11990, 30 days must elapse before this decision can be implemented. The 30-day period will begin following publication of legal notice of the decision in the Blue Mountain Eagle newspaper, John Day, Oregon.

This decision is subject to appeal pursuant to 36 CFR 217. Any written Notice of Appeal of this decision must be fully consistent with 36 CFR 217.9 (Content of a Notice of Appeal) and must include the reasons for appeal. A written notice of appeal, in duplicate, must be filed with John E. Lowe, Regional Forester (Reviewing Officer), USDA Forest Service, 333 SW First Avenue, P.O. Box 3623, Portland, Oregon 97208 within 45 days of the date legal notice of this decision appears in the Blue Mountain Eagle newspaper, John Day, Oregon.

For more information about the river and planning process contact Gerrish Willis, River Planning Team Leader. For further information about the appeals process contact Glen Stein, Environmental Coordinator. Both can be contacted at the Malheur National Forest, 139 NE Dayton, John Day, Oregon 97845; (503) 575-1731.

for Francis Fiebiger

MARK A. BOCHE
Forest Supervisor

8/7/92
DATE

Appendix B

LETTER TO APPELLANTS, ONRC & PINE, CONCERNING GRAZING STRATEGIES

United States Department of Agriculture
Forest Service
Malheur National Forest
139 NE Dayton Street
John Day, OR 97845
(503) 575-1731
FAX (503) 575-2082

Reply to: 1570/1950

Date: OCT 2 6 1992

Bob Pereira
P.I.N.E.
P.O. Box 99
John Day, OR 97845

Mark Hubbard
Oregon Natural Resources Council
Western Regional Office
1161 Lincoln Street
Eugene, OR 97401

10/26/92 JZP

Dear Sirs:

I have reviewed the P.I.N.E. and the Oregon Natural Resources Council appeals of the North Fork Malheur River Scenic River and Malheur National Forest LRMP Amendment Number 11 decision of July 15, 1992, and the P.I.N.E. appeal of the Malheur Wild and Scenic River and Malheur National Forest LRMP Amendment Number 14 decision of August 7, 1992. Portions of these decisions allow for "intensive" grazing management as an option in these river corridors and would allow grazing utilization standards higher than currently allowed in the LRMP.

After careful review of the environmental analyses for these river management plans and for the Forest LRMP, I have concluded that additional analysis must be conducted before making this modification. I am hereby withdrawing these portions of my decisions. Existing Forest-wide grazing utilization standards will continue to be in effect for these river corridors.

If you have any questions, please contact Gerrish Willis, Wild and Scenic River Planner, at extension 356.

Sincerely,

MARK A. BOCHÉ
Forest Supervisor

cc: Regional Forester
Oregon Rivers Council
Grant County Court
Ron Lockum
Malheur Lumber Co
Grant Co. Stockgrowers
R. Forman

10/26/92 JZP

cc: J. Peña
W. Ray
11/6/92 per G. Willis request

Appendix C

WILD & SCENIC RIVERS ACT

WILD AND SCENIC RIVERS ACT[1]

AN Act To provide a National Wild and Scenic Rivers System, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) this Act may be cited as the "Wild and Scenic Rivers Act".

(b) It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

(c) The purpose of this Act is to implement this policy by instituting a national wild and scenic river system, by designating the initial components with that system and by prescribing the methods by which and standards according to which additional components may be added to the system from time to time.

SEC. 2 (a) The national wild and scenic rivers system shall comprise rivers (i) that are authorized for inclusion therein by Act of Congress, or (ii) that are designated as wild, scenic or recreational rivers by or pursuant to an act of the legislature of the State or States through which they flow, that are to be permanently administered as wild, scenic or recreational rivers by an agency or political subdivision of the State or States concerned, that are found by the Secretary of the Interior, upon application of the Governor of the State or the Governors of the States concerned, or a person or persons thereunto duly appointed by him or them, to meet the criteria supplementary thereto as he may prescribe, and that are approved by him for inclusion in the system.... Upon receipt of an application under clause (ii) of this subsection, the Secretary shall notify the Federal Energy Regulatory Commission and publish such application in the Federal Register. Each river designated under clause (ii) shall be administered by the State or political subdivision thereof without expense to the United States other than for administration and management of federally owned lands. For purposes of the preceding sentence, amounts made available to any State or political subdivision under the Land and Water Conservation Act of 1965 or any other provision of law shall not be treated as an expense to the United States. Nothing in this subsection shall be construed to provide for the transfer to, or administration by, a State or local authority of any federally owned lands which are within the boundaries of any river included within the system under clause (ii).

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[1] *The Wild and Scenic Rivers Act (16 U.S.C. 1271-1287) consists of Public Law 90-542 (October 2, 1968) as amended. P.L. 99-590 (October 30, 1986) was the last Act that added generic amendments to the Act.*

(b) A wild, scenic or recreational river area eligible to be included in the system is a free-flowing stream and the related adjacent land area that possesses one or more of the values referred to in section 1, subsection (b) of this Act. Every wild, scenic or recreational river in its free-flowing condition, or upon restoration to this condition, shall be considered eligible for inclusion in the national wild and scenic rivers system and, if included, shall be classified, designated, administered as one of the following:

(1) 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.

(2) Scenic river areas - Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

(3) 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.

SEC. 3 (a) The following rivers and the land adjacent thereto are hereby designated as components of the national wild and scenic rivers system:

(Designation language for individual W&S rivers)

(b) The agency charged with the administration of each component of the national wild and scenic rivers system designated by subsection (a) of this section shall, within one year from the date of designation of such component under subsection (a) (except where a different date is provided in subsection (a)) establish detailed boundaries therefor; determine which of the classes outlined in section 2, subsection (b), of this Act best fit the river or its various segments. Notice of the availability of the boundaries and classification, and of subsequent boundary amendments shall be published in the Federal Register and shall not become effective until ninety days after they have been forwarded to the President of the Senate and the Speaker of the House of Representatives.

(c) Maps of all boundaries and descriptions of the classifications of designated river segments, and subsequent boundary amendments to such boundaries, shall be available for public inspection in the offices of the administering agency in the District of Columbia and in locations convenient to the designated river.

(d) (1) For rivers designated on or after January 1, 1986, the Federal agency charged with the administration of each component on the National Wild and Scenic Rivers System shall prepare a comprehensive management plan for such river segment to provide for the protection of the river values. The plan shall address resource protection, development of lands and facilities, user capacities, and other management practices necessary or desirable to achieve the purposes of this Act. The plan shall be coordinated with and may be incorporated into resource management planning for affected adjacent Federal lands. The plan shall be prepared, after consultation with State and local governments and the interested public within three full fiscal years after the date of designation. Notice of the

completion and availability of such plans shall be published in the Federal Register.

(2) For rivers designated before January 1, 1986, all boundaries, classifications, and plans shall be reviewed for conformity within the requirements of this subsection within 10 years through regular agency planning processes.

SEC. 4 (a) The Secretary of the Interior or, where national forest lands are involved, the Secretary of Agriculture, or, in appropriate cases, the two Secretaries jointly shall study and submit to the President reports on the suitability or nonsuitability for addition to the national wild and scenic rivers system of rivers which are designated herein or hereafter by the Congress as potential additions to such system. The President shall report to the Congress his recommendations and proposals with respect to the designation of each such river or section thereof under this Act.... In conducting these studies the Secretary of the Interior and the Secretary of Agriculture shall give priority to those rivers (i) with respect to which there is the greatest likelihood of developments which, if undertaken, would render the rivers unsuitable for inclusion in the national wild and scenic rivers system, and (ii) which possess the greatest proportion of private land within their areas. Every such study and plan shall be coordinated with any water resources planning involving the same river which is being conducted pursuant to the Water Resources Planning Act (79 Stat. 244; 42 U.S.C. 1962 et seq.).

Each report, including maps and illustrations, shall show among other things the area included within the report; the characteristics which do or do not make the area a worthy addition to the system; the current status of land ownership and use in the area; the reasonably foreseeable potential uses of the land and water which would be enhanced, foreclosed, or curtailed if the area were included in the national wild and scenic rivers system; the Federal agency (which in the case of a river which is wholly or substantially within a national forest, shall be the Department of Agriculture) by which it is proposed the area, should it be added to the system, be administered; the extent to which the costs thereof, be shared by State and local agencies; and the estimated cost to the United States of acquiring necessary land and interests in land and of administering the area, should it be added to the system. Each such report shall be printed as a Senate or House document.

(b) Before submitting any such report to the President and the Congress, copies of the proposed report shall, unless it was prepared jointly by the Secretary of the Interior and the Secretary of Agriculture, be submitted by the Secretary of the Interior to the Secretary of Agriculture or by the Secretary of Agriculture to the Secretary of the Interior, as the case may be, and to the Secretary of the Army, the Chairman of the Federal Power Commission, the head of any other affected Federal department or agency and, unless the lands proposed to be included in the area are already owned by the United States or have already been authorized for acquisition by Act of Congress, the Governor or the State or States in which they are located or an officer designated by the Governor to receive the same. Any recommendations or comments on the proposal which the said officials furnish the Secretary or Secretaries who prepared the report within ninety days of the date on which the report is submitted to them, together

with the Secretary's or Secretaries' comments thereon, shall be included with the transmittal to the President and the Congress.

(c) Before approving or disapproving for inclusion in the national wild and scenic rivers system any river designated as a wild, scenic or recreational river by or pursuant to an act of a State legislature, the Secretary of the Interior shall submit the proposal to the Secretary of Agriculture, the Secretary of the Army, the Chairman of the Federal Power Commission, and the head of any other affected Federal department or agency and shall evaluate and give due weight to any recommendations or comments which the said officials furnish him within ninety days of the date of which it is submitted to them. If he approves the proposed inclusion, he shall publish notice thereof in the Federal Register.

(d) The boundaries of any river proposed in section 5 (a) of this Act for potential addition to the National Wild and Scenic Rivers System shall generally comprise that area measured within one-quarter mile from the ordinary highwater mark on each side of the river. In the case of any designated river, prior to publication of boundaries pursuant to section 3 (b) of this Act, the boundaries also shall comprise the same area. This subsection shall not be construed to limit the possible scope of the study report to address areas which may lie more than one-quarter mile from the ordinary high water mark on each side of the river.

SEC. 5. (a) The following rivers are hereby designated for potential addition to the national wild and scenic river system:

(designation language for individual W&S study rivers)

(b)(4) For the purposes of conducting the studies of rivers named in subsection (a) there are authorized to be appropriated such sums as necessary.

(c) The study of any of said rivers shall be pursued in as close cooperation with appropriate agencies of the affected State and its political subdivisions as possible, shall be carried on jointly with such agencies if request for such joint study is made by the State, and shall include a determination of the degree to which the State or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the national wild and scenic rivers system.

(d) In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas, and all river basin and project plan reports submitted to the Congress shall consider and discuss any such potentials. The Secretary of the Interior and the Secretary of Agriculture shall make specific studies and investigations to determine which additional wild, scenic and recreational river areas within the United States shall be evaluated in planning reports by all Federal agencies as potential alternative uses of the water and related land resources involved.

SEC. 6. (a)(1) The Secretary of the Interior and the Secretary of Agriculture are each authorized to acquire lands and interests in land within the authorized boundaries of any component of the national wild and scenic rivers system designated in section 3 of this Act, or hereafter designated for inclusion in the system by Act of Congress, which is administered by him, but he shall not acquire fee title to an average of more than 100 acres

per mile on both sides of the river. Lands owned by a State may be acquired only by donation or by exchange in accordance with subsection (d) of this section. Lands owned by an Indian tribe or a political subdivision of a State may not be acquired without the consent of the appropriate governing body thereof as long as the Indian tribe or political subdivision is following a plan for management and protection of the lands which the Secretary finds protects the land and assures its use for purposes consistent with this Act. Money appropriated for Federal purposes from the land and water conservation fund shall, without prejudice to the use of appropriations from other sources, be available to Federal departments and agencies for the acquisition of property for the purposes of this Act.

(2) When a tract of land lies partially within and partially outside the boundaries of a component of the National Wild and Scenic System, the appropriate Secretary may, with the consent of the land owners for the portion outside of the boundaries, acquire the entire tract. The land or interest therein so acquired outside the boundaries shall not be counted against the average one-hundred-acre-per-mile limitation of subsection (a)(1). The lands or interests therein outside such boundaries, shall be disposed of, consistent with existing authorities of law, by sale, lease, or exchange.

(b) If 50 per centum or more of the entire acreage outside of the ordinary high water mark on both sides of the river within a federally administered wild, scenic or recreational river area is owned in fee title by the United States, by the State or States within which it lies, or by political subdivisions of those States, neither Secretary shall acquire fee title to any lands by condemnation under authority of this Act. Nothing contained in this section, however, shall preclude the use of condemnation when necessary to clear title or to acquire scenic easements or other such easements as are reasonably necessary to give the public access to the river and to permit its members to traverse the length of the area or of selected segments thereof.

(c) Neither the Secretary of the Interior nor the Secretary of Agriculture may acquire lands by condemnation, for the purpose of including such lands in any national wild, scenic or recreational river area, if such lands are located within any incorporated city, village, or borough which has in force and applicable to such lands a duly adopted, valid zoning ordinance that conforms with the purposes of this Act. In order to carry out the provisions of this subsection, the appropriate Secretary shall issue guidelines, specifying standards for local zoning ordinances, which are consistent with the purposes of this Act. The standards specified in such guidelines shall have the object of (A) prohibiting new commercial or industrial uses other than commercial or industrial uses which are consistent with the purposes of this Act, and (B) the protection of the bank lands by means of acreage, frontage, and setback requirements on development.

(d) The appropriate Secretary is authorized to accept title to non-Federal property within the authorized boundaries of any federally administered component of the national wild and scenic rivers system designated in section 3 of this Act or hereafter designated for inclusion in the system by Act of Congress and, in exchange therefor, convey to the grantor any federally owned property which is under his jurisdiction within the State in which the component lies and which he classifies as suitable for exchange or other disposal. The values of the properties so exchanged

either shall be approximately equal or, if they are not approximately equal, shall be equalized by the payment of cash to the grantor or the Secretary as the circumstances require.

(e) The head of any Federal department or agency having administrative jurisdiction over any lands or interests in land within the authorized boundaries of any federally administered component of the national wild and scenic rivers system designated in section 3 of this Act or hereafter designated for inclusion in the system by Act of Congress is authorized to transfer to the appropriate Secretary jurisdiction over such lands for administration in accordance with the provisions of this Act. Lands acquired by or transferred to the Secretary of Agriculture for the purposes of this Act within or adjacent to a national forest shall upon such acquisition or transfer become national forest lands.

(f) The appropriate Secretary is authorized to accept donations of land and interests in land, funds, and other property for use in connection with his administration of the national wild and scenic rivers system.

(g)(1) Any owner or owners (hereinafter in this subsection referred to as "owner") of improved property on the date of its acquisition, may retain for themselves and their successors or assigns a right of use and occupancy of the improved property for noncommercial residential purposes for a definite term not to exceed twenty-five years or, in lieu thereof, for a term ending at the death of the owner, or the death of his spouse, or the death of either or both of them. The owner shall elect the term to be reserved. The appropriate Secretary shall pay to the owner the fair market value of the property on the date of such acquisition less the fair market value on such date of the right retained by the owner.

(2) A right of use and occupancy retained pursuant to this subsection shall be subject to termination whenever the appropriate Secretary is given reasonable cause to find that such use and occupancy is being exercised in a manner which conflicts with the purposes of this Act. In event of such a finding, the Secretary shall tender to the holder of that right an amount equal to the fair market value of that portion of the right which remains unexpired on the date of termination. Such right of use or occupancy shall terminate by operation of law upon tender of the fair market price.

(3) The term "improved property", as used in this Act, means a detached, one-family dwelling (hereinafter referred to as "dwelling"), the construction of which was begun before January 1, 1967, (except where a different date is specifically provided by law with respect to any particular river), together with so much of the land on which the dwelling is situated, the said land being in the same ownership as the dwelling, as the appropriate Secretary shall designate to be reasonably necessary for the enjoyment of the dwelling for the sole purpose of noncommercial residential use, together with any structures accessory to the dwelling which are situated on the land so designated.

SEC. 7. (a) The Federal Power Commission shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act (41 Stat. 1063), as amended (16 U.S.C. 791a et seq.) on or directly affecting any river which is designated in section 3 of this Act as a component of the national wild and scenic rivers system or which is hereafter designated for inclusion

in that system, and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration. Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to, developments below or above a wild, scenic or recreational river area or on any stream tributary thereto which will not invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of designation of a river as a component of the National Wild and Scenic Rivers System. No department or agency of the United States shall recommend authorization of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration, or request appropriations to begin construction of any such project, whether heretofore or hereafter authorized, without advising the Secretary of the Interior or the Secretary of Agriculture, as the case may be in writing of its intention so to do at least sixty day in advance, and without specifically reporting to the Congress in writing at the time it makes its recommendation or request in what respect construction of such project would be in conflict with the purposes of this Act....

(b) The Federal Power Commission shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act, as amended on or directly affecting any river which is listed in section 5, subsection (a), of this Act, and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river might be designated, as determined by the Secretary charged responsible for its study or approval -

(i) during the ten-year period following enactment of this Act or for a three complete fiscal year period following any Act of Congress designating any river for potential addition to the national wild and scenic rivers system, whichever is later, unless, prior to the expiration of the relevant period, the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture, on the basis of study, determine that such river should not be included in the national wild and scenic river system and notify the Committees on Interior and Insular Affairs of the United States Congress, in writing, including a copy of the study upon which the determination was made, at least one hundred and eighty days while Congress is in session prior to publishing notice to that effect in the Federal Register: *Provided,* That if any Act designating any river or rivers for potential addition to the national wild and scenic river system provides a period for the study or studies which exceeds such three complete fiscal year period the period provided for in such Act shall be substituted for the three complete fiscal year period in the provisions of this clause (i); and

(ii) during such interim period from the date a report is due and the time a report is actually submitted to Congress; and

(iii) during such additional period thereafter as, in the case of any river the report for which is submitted to the President and the Congress for inclusion in the national wild and scenic rivers system, is necessary for congressional consideration thereof or, in the case of any river recommended to the Secretary of the Interior under section 2(a)(ii) of this Act, is necessary for the Secretary's consideration thereof, which additional period, however, shall not exceed three years in the first case and one year in the second.

Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to developments below or above a potential wild, scenic or recreational river area or on any stream tributary thereto which will not invade the area or diminish the scenic, recreational, and fish and wildlife values present in the potential wild, scenic or recreational river area on the date of designation of a river for study as provided by section 5 of this Act. No department or agency of the United States shall, during the periods hereinbefore specified, recommend authorization of any water resources project on any such river or request appropriations to begin construction of any such project, whether heretofore or hereafter authorized, without advising the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture in writing of its intention so to do at least sixty day in advance of doing so and without specifically reporting to the Congress in writing at the time it makes its recommendation or request in what respect construction of such project would be in conflict with the purposes of this Act and would affect the component and the values to be protected by it under this Act.

(c) The Federal Power Commission and all other Federal agencies shall, promptly upon enactment of this Act, inform the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture, of any proceedings, studies, or other activities within their jurisdiction which are now in progress and which affect or may affect any of the rivers specified in section 5, subsection (a), of this Act. They shall likewise inform him of any such proceedings, studies, or other activities which are hereafter commenced or resumed before they are commenced or resumed.

(d) Nothing in this section with respect to the making of a loan or grant shall apply to grants made under the Land and Water Conservation Act of 1965 (78 Stat. 897; 16 U.S.C. 4601-5 et seq.).

SEC. 8. (a) All public lands within the authorized boundaries of any component of the national wild and scenic rivers system which is designated in section 3 of this Act or which is hereafter designated for inclusion in that system are hereby withdrawn from entry, sale, or other disposition under the public land laws of the United States. This subsection shall not be construed to limit the authorities granted in section 6(d) or 14A of this Act.

(b) All public lands which constitute the bed or bank, or are within one-quarter mile of the bank, of any river which is listed in section 5, subsection (a), of this Act are hereby withdrawn from entry, sale, or other disposition under the public land laws of the United States for the periods specified in section 7, subsection (b), of this Act....

SEC. 9. (a) Nothing in this Act shall affect the applicability of the United States mining and mineral leasing laws within components of the national wild and scenic rivers system except that --

(i) all prospecting, mining operations, and other activities on mining claims which, in the case of a component of the system designated in section 3 of this Act, have not heretofore been perfected or which, in the case of a component hereafter designated pursuant to this Act or any other Act of Congress, are not perfected before its inclusion in the system and all mining operations and other activities under a mineral lease, license, or permit issued or renewed after inclusion of a component in the system shall be subject to such regulations as the Secretary of the Interior or, in the case of national forest lands, the Secretary of Agriculture may prescribe to effectuate the purposes of this Act;

(ii) subject to valid existing rights, the perfection of, or issuance of a patent to, any mining claim affecting lands within the system shall confer or convey a right or title only to the mineral deposits and such rights only to the use of the surface and the surface resources as are reasonably required to carrying on prospecting or mining operations and are consistent with such regulations as may be prescribed by the Secretary of the Interior or, in the case of national forest lands, by the Secretary of Agriculture.

(iii) subject to valid existing rights, the minerals in Federal lands which are part of the system and constitute the bed or bank or are situated within one-quarter mile of the bank of any river designated a wild river under this Act or any subsequent Act are hereby withdrawn from all forms of appropriation under the mining laws and from operation of the mineral leasing laws including, in both cases, amendments thereto.

Regulations issued pursuant to paragraphs (i) and (ii) of this subsection shall, among other things, provide safeguards against pollution of the river involved and unnecessary impairment of the scenery within the components in question.

(b) The minerals in any Federal lands which constitute the bed or bank or are situated within one-quarter mile of the bank of any river which is listed in section 5, subsection (a) of this Act are hereby withdrawn from all forms of appropriation under the mining and leasing laws during the periods specified in section 7, subsection (b) of this Act. Nothing contained in this subsection shall be construed to forbid prospecting or the issuance of leases, licenses, and permits under the mineral leasing laws subject to such conditions as the Secretary of the Interior and, in the case of national forest lands, the Secretary of Agriculture find appropriate to safeguard the area in the event it is subsequently included in the system....

SEC. 10 (a) Each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration primary emphasis shall be given to protecting its esthetic, scenic, historic, archeologic, and scientific features. Management plans for any such

component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area.

(b) Any portion of a component of the national wild and scenic rivers system that is within the national wilderness preservation system, as established by or pursuant to the Act of September 3, 1964 (78 Stat. 890; 16 U.S.C., ch. 23), shall be subject to the provisions of both the Wilderness Act and this Act with respect to preservation of such river and its immediate environment, and in case of conflict between the provisions of these Acts the more restrictive provisions apply.

(c) Any component of the national wild and scenic rivers system that is administered by the secretary of the Interior through the National Park Service shall become a part of the national park system, and any such component that is administered by the Secretary through the Fish and Wildlife Service shall become a part of the national wildlife refuge system. The lands involved shall be subject to the provisions of this Act and the Acts under which the national park system or national wildlife system, as the case may be, is administered, and in the case of conflict between the provisions of these Acts, the more restrictive provisions shall apply. The Secretary of the Interior, in his administration of any component of the national wild and scenic rivers system, may utilize such general statutory authorities relating to areas of the national park system and such general statutory authorities otherwise available to him for recreation and preservation purposes and for the conservation and management of natural resources as he deems appropriate to carry out the purposes of this Act.

(d) The Secretary of Agriculture, in his administration of any component of the national wild and scenic rivers system area, may utilize the general statutory authorities relating to the national forest in such manner as he deems appropriate to carry out the purposes of this Act.

(e) The Federal agency charged with the administration of any component of the national wild and scenic rivers system may enter into written cooperative agreements with the Governor of a State, the head of any State agency, or the appropriate official of a political subdivision of a State for State or local governmental participation in the administration of the component. The States and their political subdivisions shall be encouraged to cooperate in the planning and administration of components of the system which include or adjoin State- or County-owned lands.

SEC. 11. (a) The Secretary of the Interior shall encourage and assist the States to consider, in formulating and carrying out their comprehensive statewide outdoor recreation plans and proposals for financing assistance for State and local projects submitted pursuant to the Land and Water Conservation Fund Act of 1965 (78 Stat. 897), needs and opportunities for establishing State and local wild, scenic and recreational river areas.

(b) (1) The Secretary of the Interior, the Secretary of Agriculture, or the head of any Federal agency, shall assist, advise, and cooperate with States or their political subdivisions, landowners, private organizations, or individuals to plan, protect, and manage river resources. Such assistance, advice, and cooperation may be through written agreements or otherwise. This authority applies within or outside a federally administered area and applies to rivers which are components of the Wild and Scenic Rivers System and to other rivers. Any agreement under this section may include

provisions for limited financial or other assistance to encourage participation in the acquisition, protection and management of river resources.

(2) Whenever appropriate in furtherance of this Act, the Secretary of Agriculture and the Secretary of the Interior are authorized and encouraged to utilize the following:

(A) For activities on federally owned land, the Volunteers in the Parks Act of 1969 (16 U.S.C. 18g-j) and the Volunteers in the Forest Act of 1972 (16 U.S.C. 558a-558d).

(B) For activities on all other lands, section 6 of the Land and Water Conservation Fund Act of 1965 (relating to the development of statewide comprehensive outdoor recreation plans).

(3) For purposes of this subsection, the appropriate Secretary or the head of any Federal agency may utilize and make available Federal facilities, equipment, tools, and technical assistance to volunteers and volunteer organizations, subject to such limitations and restrictions as the appropriate Secretary or the head of any Federal agency deem necessary or desirable.

(4) No permit or other authorization provided for under provision of any other Federal law shall be conditioned on the existence of any agreement provided for in this section.

SEC. 12 (a) The Secretary of the Interior, the Secretary of Agriculture, and the head of any other Federal department or agency having jurisdiction over any lands which include, border upon, or are adjacent to, any river included within the National Wild and Scenic Rivers System or under consideration for such inclusion in accordance with section 2(a)(ii), 3(a), or 5(a), shall take such action respecting management policies, regulations, contracts, plans, affecting such lands, following the date of enactment of this sentence, as may be necessary to protect such rivers in accordance with the purposes of this Act. Such Secretary or other department or agency head shall, where appropriate, enter into written cooperative agreements with the appropriate State and local official for the planning, administration, and management of Federal lands which are within the boundaries of any rivers for which approval has been granted under section 2(a)(ii). Particular attention shall be given to scheduled timber harvesting, road construction, and similar activities which might be contrary to the purposes of this Act.

(b) Nothing in this section shall be construed to abrogate any existing rights, privileges, or contracts affecting Federal lands held by any private party without the consent of said party.

(c) The head of any agency administering a component of the national wild and scenic rivers system shall cooperate with the Administrator, Environmental Protection Agency and the appropriate State water pollution control agencies for the purpose of eliminating or diminishing the pollution of waters of the river.

SEC. 13 (a) Nothing in this Act shall affect the jurisdiction or responsibilities of the States with respect to fish and wildlife. Hunting and fishing shall be permitted on lands and waters administered as parts of the system under applicable State and Federal laws and regulations unless, in the case of hunting, those lands or waters are within a national park or monument. The administering Secretary may, however, designate zones

where, and establish periods when, no hunting is permitted for reasons of public safety, administration, or public use and enjoyment and shall issue appropriate regulations after consultation with the wildlife agency of the State or States affected.

(b) The jurisdiction of the States and the United States over waters of any stream included in a national wild, scenic or recreational river area shall be determined by established principles of law. Under the provisions of this Act, any taking by the United States of a water right which is vested under either State or Federal law at the time such river is included in the national wild and scenic rivers system shall entitle the owner thereof to just compensation. Nothing in this Act shall constitute an express or implied claim or denial on the part of the Federal Government as to exemption from State water laws.

(c) Designation of any stream or portion thereof as a national wild, scenic or recreational river area shall not be construed as a reservation of the waters of such streams for purposes other than those specified in this Act, or in quantities greater than necessary to accomplish these purposes.

(d) The jurisdiction of the States over waters of any stream included in a national wild, scenic or recreational river area shall be unaffected by this Act to the extent that such jurisdiction may be exercised without impairing the purposes of this Act or its administration.

(e) Nothing contained in this Act shall be construed to alter, amend, repeal, interpret, modify, or be in conflict with any interstate compact made by any States which contain any portion of the national wild and scenic rivers system.

(f) Nothing in this Act shall affect existing rights of any State, including the right of access, with respect to the beds of navigable streams, tributaries, or rivers (or segments thereof) located in a national wild, scenic or recreational river area.

(g) The Secretary of the Interior or the Secretary of Agriculture, as the case may be, may grant easements and rights-of-way upon, over, under, across, or through any component of the national wild and scenic rivers system in accordance with the laws applicable to the national park system and the national forest system, respectively: *Provided,* That any conditions precedent to granting such easements and rights-of-way shall be related to the policy and purpose of this Act.

SEC. 14. (a) The claim and allowance of the value of an easement as a charitable contribution under section 170 of title 26, United States Code, or as a gift under section 2522 of said title shall constitute an agreement by the donor on behalf of himself, his heirs, and assigns that, if the terms of the instrument creating the easement are violated, the donee or the United States may acquire the servient estate of its fair market value as of the time the easement was donated minus the value of the easement claimed and allowed as a charitable contribution or gift.

(b) For the conservation purposes of preserving or enhancing the values of components of the National Wild and Scenic River System, and the environs thereof as determined by the appropriate Secretary, landowners are authorized to donate or otherwise convey qualified real property interests to qualified organizations consistent with section 170(h)(3) of the Internal Revenue Code of 1954. Such interest may include, but shall not be limited to, rights-of-way, open space, scenic, or conservation easements without

regard to any limitation on the nature of the estate or interest otherwise transferable within the jurisdiction where the land is located. The conveyance of any such interest in land in accordance with this subsection shall be deemed to further a Federal conservation policy and yield a significant public benefit for purposes of section 6 of Public Law 96-541.

SEC. 14A. (a) Where appropriate in the discretion of the Secretary, he may lease federally owned land (or any interest therein) which is within the boundaries of any component of the National Wild and Scenic Rivers system and which has been acquired by the Secretary under this Act. Such lease shall be subject to such restrictive covenants as may be necessary to carry out the purposes of this Act.

(b) Any land to be leased by the Secretary under this section shall be offered first for such lease to the person who owned such land immediately before its acquisition by the United States.

SEC. 15....

SEC. 16. As used in this Act, the term--

(a) "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.

(b) "Free-flowing", as applied to any river or section of a river, means existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the national wild and scenic river system shall not automatically bar its consideration for such inclusion: *Provided,* That this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the national wild and scenic rivers system.

(c) " Scenic easement" means the right to control the use of land (including the air space above such land) within the authorized boundaries of a component of the wild and scenic river system, for the purpose of protecting the natural qualities of a designated wild, scenic or recreational river area, but such control shall not affect, without the owner's consent, any regular use exercised prior to the acquisition of the easement. For any designated wild and scenic river, the appropriate Secretary shall treat the acquisition of fee title with the reservation of regular existing uses to the owner as a scenic easement for the purposes of this Act. Such an acquisition shall not constitute fee title ownership for purposes of section 6(b).

SEC.17....

(Provisions of the Wild and Scenic Rivers Act that are applicable only to specific rivers have been deleted from this version of the Act in the interest of brevity. The Federal Power Commission is now the Federal Energy Regulatory Commission.)

Friends of the River & the Merced Canyon Committee 11/88

Appendix D

RESOURCE ASSESSMENT

RESOURCE ASSESSMENT

Malheur National Wild and Scenic River

USDA-Forest Service

Malheur National Forest

January 1992

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I. EXECUTIVE SUMMARY

As a result of the Omnibus Oregon Wild and Scenic Rivers Act of 1988, a segment of the Malheur River was designated as a Wild and Scenic River (W&SR). Under this act the Forest Service is required to prepare a comprehensive management plan to provide protection of the river values associated with the Malheur River. This resource assessment is being done to identify the river-related values that are outstandingly remarkable.

The findings of the Forest Service interdisciplinary team determined the following resources to be outstandingly remarkable values: geology, scenery, wildlife, and historic. In addition, fisheries and water quality were determined to be significant, but not outstandingly remarkable values.

II. INTRODUCTION

In 1968, Congress enacted the National Wild and Scenic Rivers Act, and for the first time, established a system for preserving outstanding free-flowing rivers. The Malheur River was added to this system in 1988 when it was designated as a National Wild and Scenic River by the Omnibus Oregon Wild and Scenic Rivers Act of 1988. As defined by the Act, a National Wild and Scenic River must be free-flowing and have at least one "outstandingly remarkable value". The outstandingly remarkable value of the Malheur River identified in the Congressional Record is scenery.

Under the Wild and Scenic Rivers Act, the Forest Service is required to prepare a comprehensive river management plan to provide for the protection and/or enhancement of the river values. This river planning process, of which the resource assessment is one step, will comply with the National Environmental Policy Act (NEPA) planning regulations. Through each phase of the planning process, public involvement will be invited and is essential for the success of a sound management plan.

III. THE RESOURCE ASSESSMENT PROCESS

This resource assessment serves as the foundation of the river management planning process. The assessment documents the determination of which river-related values or features are outstandingly remarkable or contribute substantially to the river setting or to the functioning of the river ecosystem. The Wild and Scenic Rivers Act directs the Forest Service to develop a management plan for the Malheur River which protects or enhances these outstandingly remarkable values.

Because Oregon rivers added to the Wild and Scenic Rivers System in 1988 did not have a formal study completed on them prior to legislative action which would have identified the outstandingly remarkable values of each river, the analysis is being done to verify those values identified in committee reports and to identify values that may have been overlooked prior to passage of the Omnibus Oregon Wild and Scenic Rivers Act.

The resource assessment process provides a standardized approach to the evaluation of designated

Wild and Scenic Rivers' values. This assessment will guide interim management, development of the management plan, and determination of boundaries.

Although the determination of value significance is a matter of informed professional judgement and interpretation, this process includes the following steps or verification techniques:

- The use of an interdisciplinary team approach, collecting river resource information and making comparisons against established value evaluation criteria.

- Consideration of uniqueness and rarity at a regional and national level. The region of comparison used here is southern Baker and Grant Counties and northern Malheur and Harney Counties, Oregon.* Other rivers in this region of comparison include The South Fork John Day, North Fork Malheur and Owyhee, also designated Wild and Scenic Rivers, and the Silvies, Burnt, Middle Fork John Day, and Powder.

- Values must be river-related in that they owe their existence or contribute to the functioning of the river system and its immediate environs.

- The use of qualitative guidelines (Criteria for Outstandingly Remarkable) to determine significance. These guidelines were developed in 1990 by the Oregon Wild and Scenic Rivers Policy Group, made up of representatives from federal and state agencies, the Congressional delegation, private interests, and environmental organizations.

- Verification by other experts in the subject area.

The resource categories that have been considered include:

Scenery	Recreation
Geology	Fisheries
Wildlife	Historic/Prehistoric
Traditional Uses/ Cultural Values	Hydrologic/Water Quality
Botany/Ecology	

*Based partially on the eight geographic regions described in the 1989 Statewide Comprehensive Outdoor Recreation Plan for Oregon (SCORP).

IV. RIVER DESCRIPTION

The Malheur River flows southerly from headwater streams in the Strawberry Mountain Wilderness Area through the Malheur National Forest, and eventually easterly, joining the Snake River near Ontario, Oregon. The 12-mile segment of the Malheur River designated as a component of the

National Wild and Scenic Rivers System in 1988 is located entirely on National Forest land and includes the following river segments:

Segment A	SCENIC RIVER: The 6-mile segment from near the confluence of Bosonberg Creek below Logan Valley to Malheur Ford.
Segment B	WILD RIVER: The 7-mile segment from Malheur Ford to the Malheur National Forest boundary.

For the purposes of interim management until the river management plan is completed, the Forest Service established a corridor width of one-quarter mile on either side of the river. In 1990, a corridor boundary of varying widths, which includes 3,758 acres, was established featuring the inclusion of outstandingly remarkable scenic and geologic values based on a resource assessment completed in 1989. That assessment was not reviewed by experts outside the Forest, and was based upon limited information about some of the river resources and river-related values. This assessment considers new information about the river and builds upon the previous one. No adjustments to this corridor boundary have been identified as necessary to protect the outstandingly remarkable values.

V. DISCUSSION OF RIVER VALUES

SCENERY

Criteria for "Outstanding Remarkable" Rating

The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions within the geographic region. When analyzing scenic values, additional factors such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed may be considered. Scenery and visual attractions may be highly diverse over the majority of the river or river segment length, and not common to other rivers in the geographic region.

Evaluation of the Present Situation

The scenic quality in the river corridor is a combined result of the landforms, water, and vegetative features. The upper portion of the river corridor, Segment A, from the forest boundary below Logan Valley to Malheur Ford, begins at the edge of a wide, grass valley with gently rolling, thinly forested hills paralleling the river. There is a striking view to the north of the snow capped Strawberry Mountains from the upper end of this segment. Yellow and red wildflowers grace springtime meadows. Clear river water flows through a series of riffles and few pools, cutting a shallow, narrow canyon. There is great variety of vegetation, from flowers in the meadows to scattered shrubs (sage brush, willows, dogwood, alders, etc.) and stately trees (ponderosa pine, lodgepole pine, larch, etc.). There is a richness in color, from the brown-tan rock and dull green grass pastels on the hills in the summer, to the splashes of red shrubs and golden larch in the fall, to the bright green larch and red and yellow pastels of wildflowers in the spring.

Although the canyon is shallow, the walls are steep with exposed jagged rock surfaces and scattered vegetation. This creates a quiet and secluded setting with limited views of what is hidden around the next bend. Access for recreationists is limited to the north and south ends and at isolated locations along the rim, as there is no trail along this section of the river.

The lower portion of the river corridor, Segment B, from Malheur Ford to the forest boundary, descends into an ever-deepening, steep, enclosed canyon that eventually towers hundreds of feet. Crags and cliffs jut out from the steep cascading talus slopes and deep ravines. Trees and shrubs along the waters edge are found on the rocky slopes in stringers where there are scattered sites suitable for growth.

There is great variety of vegetation, from the delicate flowers clinging in rocky areas to the scattered shrubs (sage brush, willows, dogwood, alders, etc.) and majestic towering trees (ponderosa pine, douglas fir, larch, etc.). There is richness in color, from the horizontal bands of gray and tan pastels in the canyon walls with dark green trees shading the river in the summer, to the splashes of red shrubs and golden larch in the fall, to the bright green larch in the spring and a white blanket of a winterland sparkling in the sun. As sunlight reaches into the canyon, it reveals different treasures throughout the day. The towering canyon walls speak of the harshness of nature and the isolation and insignificance of man.

Access for recreationists is limited to the north and south ends of the Malheur River Trail, which parallels the waters edge, and isolated locations along the rim. There are enclosed views along the Malheur River Trail and panoramic views into the deep canyon from remote locations along its rim.

The landform changes dramatically over the length of the river. It begins as a shallow canyon and develops into towering canyon walls ranging from 300 to 1,000 feet in height. There is rich diversity of vegetation in a natural condition that provides a variety of color throughout the year with golds, greens, browns, and reds. The rock formations add grays and browns as a backdrop to the vegetation and the green waters of the river. There is little evidence of human intrusion in the predominately undisturbed corridor.

Though these scenic characteristics are also present to some degree in other rivers in the region of comparison, such as the South Fork and Main stem of the John Day Rivers, Burnt River, Powder River, or Silvies River, the Malheur River provides a higher quality visual experience, similar to those found in other designated Wild and Scenic Rivers, the North Fork Malheur and Owyhee.

Findings

The Malheur River is a river of contrasts. The combined scenic qualities of the upper river corridor, featuring a narrow, steep canyon, vegetative variety, seasonal color displays, solitude from human activity, and a mountain stream, are notable characteristics unique in this region. The lower portion of the river, with its diversity of vegetation, cliff/talus rock formations, deep river canyon setting, isolation, and tumbling waters, are exemplary attributes also unique in this region to the North Fork Malheur and this river. Many other rivers in the area have roads directly paralleling them for recreational access. This river has few access points and is isolated by the shear steepness and depth of the canyon walls, providing solitude. In addition, the Malheur River offers a unique opportunity to view Nature's processes in a deep river-canyon environment.

The combination of water, diverse dramatic landforms, variety and color of vegetation, all in a relatively undisturbed environment, creates a beautiful and unusual landscape throughout the year. **The scenic value of the river corridor is considered outstanding and remarkable and verifies the identification of this value by Congress.**

RECREATION

Criteria for Outstandingly Remarkable

Recreational opportunities are, or have the potential to be, unique enough to attract visitors from outside the geographic region. Visitors would be willing to travel long distances to use the river resources for recreation purposes. River-related opportunities could include, but not be limited to, sightseeing, wildlife observation, photography, hiking, fishing, hunting, and boating.

Interpretative opportunities may be exceptional and attract, or have the potential to attract, visitors from outside the geographic region.

The river may provide, or have the potential to provide, settings for national or regional use or competitive events.

Evaluation of the Present Situation

The Malheur River provides a variety of recreational opportunities. Trout fishing, hiking, back-packing, birdwatching, photography, swimming, camping, and horseback riding are among the most common pursuits enjoyed by visitors.

River access for motorized vehicles is currently limited. Roads access the river in only two places: at Burnt Bridge, in Segment A below the confluence of Bosonberg Creek where Forest Road 147 fords the river, and at Malheur Ford, where the 1651 road crosses the river.

The Malheur River Trail (Number 303), a designated National Recreation Trail, parallels the river downstream from Malheur Ford through the wild section of the river on the west bank for about 6 miles. Many fishermen will hike down side-canyons from the rim to fish reaches of the river. Fishing is one of the most common recreational pursuits, and people come to the river from many different areas of the state to fish. In general, recreation use is low. No accurate use figures are available.

Existing Recreation Opportunity Spectrum Classes are semi-primitive motorized for Segment A and semi-primitive non-motorized for Segment B. Due to the low levels of use, most visitors easily find a sense of remote solitude away from the two fords, especially in Segment B.

Occasional whitewater boating using inflatable rafts or canoes occurs some years, but is severely curtailed by unpredictable flows and poor access to put-ins and take-outs.

Hunting use of the river corridor and associated camping is generally above the rim, except for several dispersed campsites at Burnt Bridge and Malheur Ford. Facilities at these sites are limited

to rustic toilets and picnic tables. Most big-game hunting is during the mule deer and Rocky Mountain elk seasons, although some antelope hunting also occurs.

One groomed snowmobile trail crosses the river on private land above Burnt Bridge. Cross-country skiing and snowshoeing are not popular due to the great distances to the nearest plowed roads.

Finding

The Malheur River provides a variety of high-quality recreational opportunities. These opportunities are commonly found in many other rivers in the region and are not considered to be unique to this river. Visitor use is at low levels, due primarily to the distances from large population centers and lack of notoriety. Interpretative opportunities and the potential to provide settings for national or regional use or competitive events are low. **The recreational opportunities of the river are not determined to be outstandingly remarkable values.**

GEOLOGY

Criteria for Outstandingly Remarkable

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 unique to the geographic region. The feature(s) may be in an unusually active stage of development, represent a "textbook" example and/or represent a unique or rare combination of geologic features (erosional, glacial, and other geologic structures).

Evaluation of the Present Situation

The bedrock materials along the river canyon walls consist predominately of lava of the Strawberry Volcanics Formation. The Strawberry Volcanics were extruded through shield volcanos and several vents in the vicinity of Strawberry Mountain and Lookout Mountain during a long series of eruptive events which occurred during Miocene and early Pliocene ages. The most active period occurred between 12 million and 15 million years ago, within an active structural basin that developed in the transitional zone between the Columbia Plateau and the Basin and Range geologic provinces. Subsequent uplift of the area through folding and faulting activities has been estimated to be as much as 7,500 to 9,000 feet.

Columnar structure is the dominate texture in the contemporaneous volcanic flows of the geographic region, but in much of the Strawberry Volcanics, a platy structure or texture is dominant. Parent materials are primarily andesites and basalts, which are generally highly stable and resistant to erosion.

This platy structure is especially evident in the outcrops and talus slopes along the river canyon in Segment B. As the individual plates separate from the outcrops and begin to migrate down-slope, they quickly become aligned parallel to each other and the slope beneath them. Talus slopes composed of these flat plates have very little frictional resistance to down-slope movement relative to more massive or blocky materials found elsewhere. Consequently, movement within talus deposits is relatively easy to initiate when materials are undercut or disturbed through erosional or other processes.

The river lies adjacent to and through the interior of a down-thrown block (graben) area that lies between two south-southeast trending faults, which extend beyond the Forest boundary. At the lower end of Logan Valley in Segment A, the river channel passes through areas where glacial moraines and alluvium have been deposited on the bedrock materials.

The volcanic materials are best exposed in Segment B, where the river has carved the deepest canyon. Total relief from the top of the canyon to the river level in this segment ranges from 300 to 1,000 feet. Vertical cliffs as high as 50 feet are common in some areas. In others, differential weathering has created pinnacles and windows or small arches through portions of the outcrop.

Ancient mass movements or slope failures are fairly common in this segment where the river undercut the sides of the canyon until they became unstable, and they sloughed or failed as large blocks of material. Massive talus slopes exist at the base of or below most of the outcrops, some extending for several hundred feet into the riverbed.

The Malheur River (and North Fork Malheur River) canyon offers the best opportunities within river canyon settings to view the Strawberry Volcanics formation within a river canyon setting. In addition, the geologic features add significant interest, form, and color to the general scenery of the river corridor with pinnacles, hoodoos, cliffs, overhangs, and large talus slopes.

Finding

The geologic formation of the Strawberry Volcanics and the features it expresses within the Malheur River canyon results in geology being assessed as an outstandingly remarkable value. This formation, with its unique structure, is unique to the geographic region. The geology also adds to the beauty and scenic character of the river canyon.

FISHERIES

Criteria for Outstandingly Remarkable

Fish values may be judged on the combination of relative merits of either fish populations or habitat, or a combination of these river-related conditions.

Populations. The river is nationally or regionally an important producer of resident and/or anadromous fish species. Of particular significance is the presence of wild stocks and/or threatened and endangered species.

Habitat. The river provides exceptionally high-quality habitat for fish species indigenous to the region. Of particular significance is habitat for wild stocks and/or federally listed or candidate threatened and endangered species.

Evaluation of the Present Situation

The Malheur River flows south from Logan Valley and is fed by streams originating, for the most part, within the Strawberry Mountain Wilderness Area. Water from the Malheur River eventually flows into the Pacific Ocean, via the Snake and Columbia Rivers.

The Malheur River is important within the region of comparison as a producer of gamefish. Native redband trout, stocked rainbow trout, Eastern brook trout and mountain whitefish are commonly caught by anglers from local and distant communities. Catch rates are high, but few large "trophy" fish are caught.

Prior to the construction of Warm Springs Dam in 1919, the river supported runs of two anadromous species: the chinook salmon and the steelhead trout. Another species, the Pacific lamprey eel, may have been present too. This species is known to have existed downstream in both the Snake and Owyhee rivers. In addition, bull trout distribution in the Snake River and tributaries was much greater before the dam construction. Bull trout probably migrated through and reared in the Wild and Scenic portion of the Malheur River at that time.

Documented historic Indian fishing sites, located downstream in the Drewsey area and presumably in Logan Valley, attest to the large runs of anadromous fish which once swam up the river to spawn.

There are also five minnow, two sucker, and one sculpin species in the river.

Bull trout is a sensitive species listed in Category 2 by the U.S. Fish and Wildlife Service. Historically, bull trout were found throughout the basin. Water temperatures, irrigation diversions, increased fishing pressure, competition and interbreeding with introduced brook trout, and other habitat changes, have greatly reduced the population and distribution from historic levels. We do not have the historic survey data that would enable us to rate the relative importance of each of these changes, however, they all appear to have contributed to the decline of the bull trout. For instance, there is some anecdotal information which indicates that some large pools were lost as a result of the 1964 flood, but we do not have any actual survey data to substantiate this.

Bull trout were identified in 1955 in the Malheur River as far downstream as the confluence of Wolf Creek. None have been found in more recent surveys by the Oregon Department of Fish and Wildlife (ODF&W) within this portion of the river. It appears that current distribution of bull trout is mostly limited to cold-water tributaries above Logan Valley, with only occasional movement into the river corridor.

The ODF&W has placed a prohibition on the taking of bull trout from all waters in southeast Oregon as a temporary protective measure for the species.

The ODF&W currently stocks the river annually at Malheur Ford with 1,100 legal-sized rainbow trout. Creel surveys done when stocking levels were higher indicated that most of these stocked fish were caught within a fairly short period of time after the stocking. Also, very few larger hatchery fish were caught, indicating that survival of these stocked fish to a reproductive age is very low. Therefore, the ODF&W feels that the risk of interbreeding of stocked fish with wild redband trout, which is a Category 2 sensitive species; is minimal at the current stocking level.

Habitat for cold-water species within the subbasin, especially bull trout, is primarily limited by water termperature. Water temperatures in the main river approach 70 degrees F. during the hottest times of the summer. Due to the north-south orientation of the river, effective shading of the water's surface during the mid-day peak heating period is, for the most part, limited to overhanging streambank vegetation and taller trees along the river. Water quality is otherwise generally high, with low levels of sediment and suspended materials.

A very limited amount of apparently suitable habitat for bull trout is available in the small tributaries of Cliff, Skookum and Lee Creeks. But with only a few hundred feet of available habitat in each of these streams, it is unlikely that these streams could be regularly used by bull trout without suitable habitat in the adjoining part of the main river.

Findings

The fishery resource of the Malheur River is important on a local and regional level. Redband trout, a sensitive species, is commonly found in the river. It is also common in rivers and streams throughout eastern Oregon. Bull trout, another sensitive species, is rarely found within the designated river corridor, but is common in tributaries upstream, above Logan Valley. Within the region of comparison, the distribution of bull trout is limited to cold-water tributaries and headwater reaches of the North Fork, Middle Fork and Mainstem John Day River, and the North Fork Malheur River. No anadromous species inhabit the river, due to numerous downstream dams which block passage.

Fish habitat within the river is moderate in quality, limited by lack of diversity in some areas. High water temperatures and low flows in late summer limit the effectiveness of the habitat for some native fish. The opportunities to improve fish habitat quality, especially water temperature, to reach a level suitable for bull trout, is very limited within the river corridor. It would take a decrease of about 15 degrees to make the lower portion of the river in the corridor suitable for bull trout. To accomplish such a change would require substantial modifications in upstream watershed management.

The fishery resource of the Malheur River is significant. However, this resource is not determined to be an outstandingly remarkable value.

WILDLIFE

Criteria for Outstandingly Remarkable

Wildlife values may be judged on the relative merits of either wildlife populations or habitat, or a combination of these conditions.

Populations. The river or area within the river corridor contains nationally or regionally important populations of indigenous wildlife species. Of particular significance are species considered to be unique or populations of federally listed or candidate threatened and endangered species.

Habitat. The river or area within the river corridor provides exceptionally high quality habitat for wildlife of national or regional significance, or may provide unique habitat or a critical link in habitat conditions for federally listed or candidate threatened and endangered species. Contiguous habitat conditions are such that the biological needs of the species are met.

Evaluation of the Present Situation

Populations

The Malheur River corridor, due to its location, habitat quality, and diversity has the potential to support nearly all the wildlife species found on the Malheur National Forest. Over 195 species of birds, 70 species of mammals, and 20 species of amphibians and reptiles are known or suspected to spend portions of their lives within the corridor.

Cougar, or mountain lion, an animal requiring solitude and relief from human interference, is found there. A pair of osprey nest above Malheur Ford. This nest is thought to be the southernmost nest site in the Blue Mountains. River otter and beaver occupy the aquatic and riparian habitats.

There are no known threatened or endangered species which inhabit the river corridor on a continuous basis, however, bald eagles have been sited on several occasions. No known roosts or nest sites have been documented within the corridor.

Game animals commonly seen in the corridor include mule deer, antelope, Rocky Mountain Elk and black bear. Sage grouse, a species on the Region 6 Regional Forester's Sensitive Species list has been documented west of the river, and probably ranges into the corridor from time to time.

Habitat

Existing within the corridor of the designated river, which courses approximately 12 miles, are some of the most diverse habitats found in any river canyons within the east central portion of Oregon. Numerous species of the Great Basin uplands, stream riparian and meadow areas, and ponderosa pine and mixed conifer forests find quality habitat here.

Segment A is characterized by a gradually deepening canyon as one travels downstream toward the Malheur Ford, with gradual side slopes and a wide floodplain along the river. The northern end of this segment is characterized by open meadows and sagebrush and bunchgrass side slopes. Forest habitat increases in importance as the canyon deepens. Easy access to forest stands and open flats outside the corridor make this area particularly useful for animals that typically travel large distances for forage and other aspects of their life cycles. Approximately 158 acres of these stands meet the Regional definition of old growth.

Segment B, is a deep, steep-sided canyon with numerous talus and sagebrush and bunchgrass slopes intermixed with mature stands of ponderosa pine and other conifer species. Approximately 1,192 acres of these stands meet the Regional definition of old growth. Several old burns add to the diversity of species and successional stages within this portion of the corridor. Riparian vegetation is well developed, though narrow in width in most areas. A wide variety of microhabitats are provided by talus and rock slopes, varying aspects and vegetation cover, seeps, springs, and streams.

Approximately 13,500 acres of large, connected areas of old growth or mature forests provide specialized habitats for a number of species, in particular, nine species of woodpeckers. It is believed that it is the variable sizes and high density of dead trees, or snags, which account for the diversity of woodpecker species present. Other species responding to these old growth characteristics include birds which use woodpecker cavities for nesting, game animals which seek thermal cover, such as

mule deer and elk, and interior forest dwellers. Some of these stands are experiencing moderate to severe mortality due to insect and disease infection. It is expected that some of these stands which currently meet the Regional definition of old growth may not in a few years as conditions change.

The river corridor provides habitats with high structural development and diversity. The corridor is generally unaltered by land management disturbances such as timber harvest and road construction. This is typical of most lands adjacent to the corridor above the canyon rim. The entire corridor is within grazing allotments and has been grazed by cattle. Most grazing occurs within the riparian zones adjacent to the river and tributary streams.

With the exception of the road which crosses the river at Malheur Ford, the southern end of Segment A and all of Segment B is unroaded. A trail parallels the river in Segment B, but the level of use is generally low. Animals which require solitude or move in response to disturbance from vehicles are still present along the river.

Excellent potential habitat exists for several Threatened or Endangered species, including the peregrine falcon and bald eagle. The Malheur River is targeted in the U.S. Fish and Wildlife's "Pacific States Bald Eagle Recovery Plan." Upon the full recovery of the bald eagle, the corridor will probably support roost and nest sites. The cliffs in Segment B could provide nest sites for the peregrine falcon, but the species will probably not occupy the corridor without introduction programs.

The most significant habitat values that the corridor provides are the link or connectivity it allows between the Blue Mountain and Great Basin physiographic provinces and between adjacent lands above the canyon rim, the large areas of old growth habitats, the unroaded condition of the area, and the presence of potential habitat for Threatened, Endangered, or Sensitive species. Few rivers in the region of comparison provide this high quality and diverse habitat combined with the solitude for animals found within.

Findings

Wildlife populations within the Malheur River corridor are significant due to the species richness present. However, no nationally or regionally important populations of indigenous species are contained within the corridor and no unique species or populations of federally listed or candidate threatened and endangered species are known to inhabit the area, although sightings of the bald eagle are made occasionally. **Wildlife populations are determined to be a significant river related value but are not determined to be an outstandingly remarkable value.**

The river corridor provides exceptionally high quality habitat components for a wide variety of species, especially in Segment B. The diversity of habitats present, exceptional habitat quality, and solitude provided is exceptional when compared to most other river systems in the Blue Mountain-Great Basin interface within east central Oregon, the region of comparison. The river corridor has the potential to provide habitats and critical habitat conditions for two animals on the Threatened and Endangered Species List: the bald eagle and peregrine falcon. Few rivers in the region of comparison provide as much diversity of habitats within a relatively undisturbed and unroaded river canyon as found in the wild section of the Malheur River. Wildlife habitat is determined to be an outstandingly remarkable value.

HISTORIC/PREHISTORIC

Criteria for Outstandingly Remarkable

The river or area within the river corridor contains a site(s) or feature(s) associated with a significant event, an important person, or a cultural activity of the past that was rare, unusual, or one-of-a-kind in the region. A historical site is, in most cases, 50 years old or older. Of particular significance are sites or features listed in, or are eligible for, inclusion in the National Register of Historic Places.

The river or area within the river corridor contains a site(s) where there is evidence of occupation or use by native Americans. Sites must be rare, one-of-a-kind, have unusual characteristics or exceptional human interest(s) values. Sites may have national or regional importance for interpreting prehistory; may be rare and represent an area where a culture or cultural period was first identified and described; may have been used concurrently by two or more cultural groups; or may have been used by cultural groups for rare or sacred purposes. Of particular value will be pristine sites that have not been disturbed.

Evaluation of the Present Situation

Historic

There is little historic information about the designated portion of the Malheur River. Three historic sites have been inventoried. One is the remains of a historic camp from the early 20th century. The second is the remains of a cabin of unknown age that was burnt over during a 1989 wildfire.

Immediately below Malheur Ford, in Segment B, are the remains of an earthen splash dam that was used for releasing water to transport logs down the river to a sawmill in the vicinity of Drewsey, Oregon. Downstream from this dam site, many high stumps on benches along the river indicate logging in this area before the advent of the chainsaw. This dam is the only historic site within the Malheur River Canyon considered to be eligible for the National Register of Historic Places and is the only splash dam known to have existed within the region of comparison. Only six other splash dam sites are known in eastern Oregon.

The river corridor was contained within the Malheur Indian Reservation which was in existence between 1872 and 1882. No sites within the corridor have been located related to this time period.

Prehistoric

There are 13 recorded prehistoric sites in the river corridor. Eleven contain stone tools and flakes (lithics) from the manufacturing of tools. One is an uncommon site type where basalt cobbles were broken to test for tool making suitability. One of the lithic scatters is quite extensive and represents longer use of the area. Two sites are trees from which the cambium layer was peeled for food.

Two Elko series projectile points that were located within the corridor indicate that use occurred during the Middle Archaic period. Nine of the recorded sites are judged eligible for inclusion in the National Register of Historic Places due to their potential to yield important information about

prehistory of the area. The corridor undoubtedly served as a travel route between the Harney Basin and the Logan Valley/Strawberry Mountains area.

Findings

A cultural resources inventory has been completed for the river corridor. Several historic and prehistoric sites have been located and recorded within the Malheur River corridor; some are considered eligible for inclusion in the National Register of Historic places. The splash dam site and early logging activities which occurred downstream are of particular significance. **The historic value is determined to be outstandingly remarkable.**

Prehistoric Resources are determined not to be outstandingly remarkable, because the site types occur frequently in this part of the Malheur National Forest, or are ineligible for the National Register.

TRADITIONAL USE/CULTURAL VALUES

Criteria for Outstandingly Remarkable

The river or area within the river corridor contains a regionally unique location(s) of importance to Indian tribes (religious activities, fishing, hunting, and gathering). Locations may have unusual characteristics or exceptional cultural value being integral to continued pursuit of such activities. Locations may have been associated with treaty rights on ceded lands or activities unprotected by treaty on ceded lands or in traditional territories outside ceded lands.

Evaluation of the Present Situation

The Malheur River area is known to have been used for hunting, fishing, and gathering by the Northern Paiute, Umatilla, Cayuse, and Warm Springs peoples in historic times. The river was contained within the Malheur Indian Reservation until 1882. Northern Paiutes fished for salmon and steelhead trout in the river until the runs were blocked by the Warm Springs Dam, constructed in 1919. The Burns Paiute Tribe, the Confederated Tribes of Warm Springs, and the Confederated Tribes of the Umatilla Indian Reservation have been unable to document important cultural values or use areas within the river corridor.

Finding

Regionally unique locations of traditional use or cultural activities are not known within the North Fork Malheur River corridor. No regionally unique locations of importance to Indian tribes have been identified along the river or within the river corridor. **Traditional uses and cultural values are determined not to be outstandingly remarkable values for this river.**

HYDROLOGIC/WATER QUALITY

Criteria for Outstandingly Remarkable

The river has exceptionally pure, clean, and/or clear water. The river is known for its water quality regionally or nationally. The river provides, or has the potential to provide, exceptionally high water quality for a variety of beneficial uses including, but not limited to, fish and wildlife, recreation, and communities.

The river or the area within the river corridor contains an example(s) of a hydrologic feature, process, or phenomena that is rare, unusual, one-of-a-kind or unique to the geographic region. The feature(s) may be in an unusually active stage of development, represent a "textbook" example and/or represent a unique or rare combination of hydrologic phenomena (large aquifers, springs, or other features).

Evaluation of the Present Situation

Hydrologic

Most of the water flowing into the designated portion of the Malheur River originates within headwaters in the Strawberry Mountain Wilderness Area. The majority of precipitation occurs as snowfall and accumulates from November through April in high glacial valleys and cirques, which occur up to 8,570 feet within the range.

There are few large springs and no rare hydrologic features, processes, or phenomena contained within the river corridor. One spring area south of Tureman Creek on the west side of the river does provide an area of lush vegetation, and is of botanical rather than hydrological interest.

Tributary streams such as Big Creek and Lake Creek flow southerly through Logan Valley, an area characterized by deep, glacial deposited sands and gravels. The Malheur River begins at the lower end of Logan Valley at the confluence of Big Creek and Bosonberg Creek.

Water Quality

These tributary streams produce abundant amounts of cool, clean water where they enter the valley. There are many water diversions and flood irrigation ditches on private and National Forest land within Logan Valley, with the net result that by the time the Malheur River begins, the water is warmer and more turbid. Shade within Logan Valley is almost non-existent for almost its entire length of 5 miles. Streamside vegetation is almost non-existent, so the water flowing through the valley is unshaded for most of its course. The flood irrigation results in low volume, shallow flows, and increased temperatures.

A few significant tributary streams enter the river downstream from its northernmost point, including Summit Creek and Frazier Creek. These streams do not contribute significantly to the overall water quality of the river, but their temperatures are generally cooler and the water cleaner than the river, which provides ameliorating effects to the warmer river temperature. In general, temperatures within the Malheur are dominated by cold water tributaries flowing into a mostly unshaded, north-south oriented river with dark substrate. Consequently, summer river temperatures are 10 to 25 degrees warmer than the streams that feed it. Water temperatures often reach the high 60s and low 70s F.

Flows within the river are variable in any given year. Sixty-six years of recording yields indicate an annual mean daily flow of around 200 cubic feet per second (cfs). The volume ranges from 10

cfs in August to over 600 cfs in April. The largest flood recorded was in December of 1964 at over 12,000 cfs.

Highly erosive soils with high clay content cover less than 5 percent of the total basin. Consequently, water turbidities are generally low in the river.

Finding

The waters of the Malheur River are not exceptionally pure, clean, or clear. It is not renown nationally or regionally for its water quality, and because of upstream uses, the river has limited potential to produce exceptionally high water quality.

The river does not contain examples of hydrologic features, processes, or phenomena which are rare, unusual, or one-of-a kind or unique to the region of comparison.

The hydrology and water quality of the Malheur River are not determined to be outstandingly remarkable values, but water quality is nevertheless considered a significant attribute of the river ecosystem.

BOTANY/ECOLOGY

Criteria for Outstandingly Remarkable

The river or river corridor contains nationally or regionally important populations of indigenous plant species. Of particular significance are species considered to be unique or populations of federally listed or candidate threatened and endangered species. Additional factors such as diversity of species, number of plant communities, and cultural importance of plants may be considered.

Evaluation of the Present Situation

Botany

Five general plant habitats are found in the river corridor: forest, scab and sagebrush flats, riverbanks and islands, upland riparian, and talus slopes. The river canyon is dominated by ponderosa pine, Douglas fir, and grand fir, with minor amounts of western larch and lodgepole pine in some of the more moist, timbered areas; and western juniper and various shrubs and grasses on drier sites. Willows, red osier dogwood, and alder are the dominant shrubs in the riparian plant communities.

There are many mature ponderosa pine and mixed conifer stands characterized by large-diameter trees growing in uneven-aged conditions throughout the canyon. As in many areas in the Malheur National Forest, tree growth is often limited by soil depth and other soil characteristics. Some soils within the corridor are predominately derived from ash which fell during the eruption of Mount Mazama around 6,500 years ago.

A current insect epidemic has resulted in the death of many trees, especially Douglas fir and grand fir, throughout the corridor. This epidemic is primarily an indirect result of years of fire exclusion which allowed these fire-intolerant trees to grow into unnatural conditions.

Over 140 plant species have been identified in Segment A. Long side-slopes which grade slowly down to the river and numerous sand and gravel bar islands in the river reflect the low stream gradient here. Observable boundaries between plant communities are gradual in this rather homogeneous environment. A series of springs at mid-slope on the western side of the canyon provide habitat for a lush variety of forbs and grasses and is a notable feature of this segment.

Segment B is characterized by steeper slopes in a deep canyon, broken by cliffs and rockslides. Boundaries between plant communities are often abrupt and distinct. Over 150 plant species were identified in this segment. Several notable features exist in this area:

- A five-acre ephemeral shallow bog/pond on a bench high above the river south of Black Canyon,
- A silver sagebrush/grassland community on a bench south of Cliff Creek,
- And a 390-acre wildfire which burned rim to rim during the summer of 1989, which is providing the opportunity to observe natural revegetation and successional changes over time.

There are no threatened or endangered plant species known to inhabit the Malheur River corridor.

Ecology

Due to the relatively low elevation (5,000 feet), the plant communities in the Malheur River corridor exhibit a Great Basin composition. Vegetative cover is defined by aspect, particularly in Segment B.

There are mature ponderosa pine and other conifer trees growing in the corridor which present good examples of old-growth characteristics. These stands are unique in their contiguity with other stands of large trees, the diversity of tree species, and the relatively unroaded setting which they inhabit. The species composition within these stands is in transition due to current insect-related mortality.

Wildfire played a major role in the plant communities found in this area during pre-anglo settlement periods. Lightning fires from convective storms from July to September are estimated to have occurred regularily, with return periods of about 10 years. Some fires may have been started by prehistoric man, as this use of fire is documented in other areas for driving game and other purposes. Since the introduction of domestic livestock (which removed much of the lighter fuels and grasses), and fire suppression; "fire climax" species such as ponderosa pine have been replaced on many sites by trees with less tolerance to fire, such as grand fir and Douglas fir. On some sites, areas which were once predominately grasses now have western juniper as the dominant plant.

Though the ecological processes and plant communities in the river corridor are common in this area of the Malheur National Forest, the river corridor provides an excellent canyonland for interpreting the Great Basin with its transition to mountainous landscapes. Numbers of plant communities within the corridor are similar to other rivers in the region of comparison, and no uncommon communities or processes have been identified.

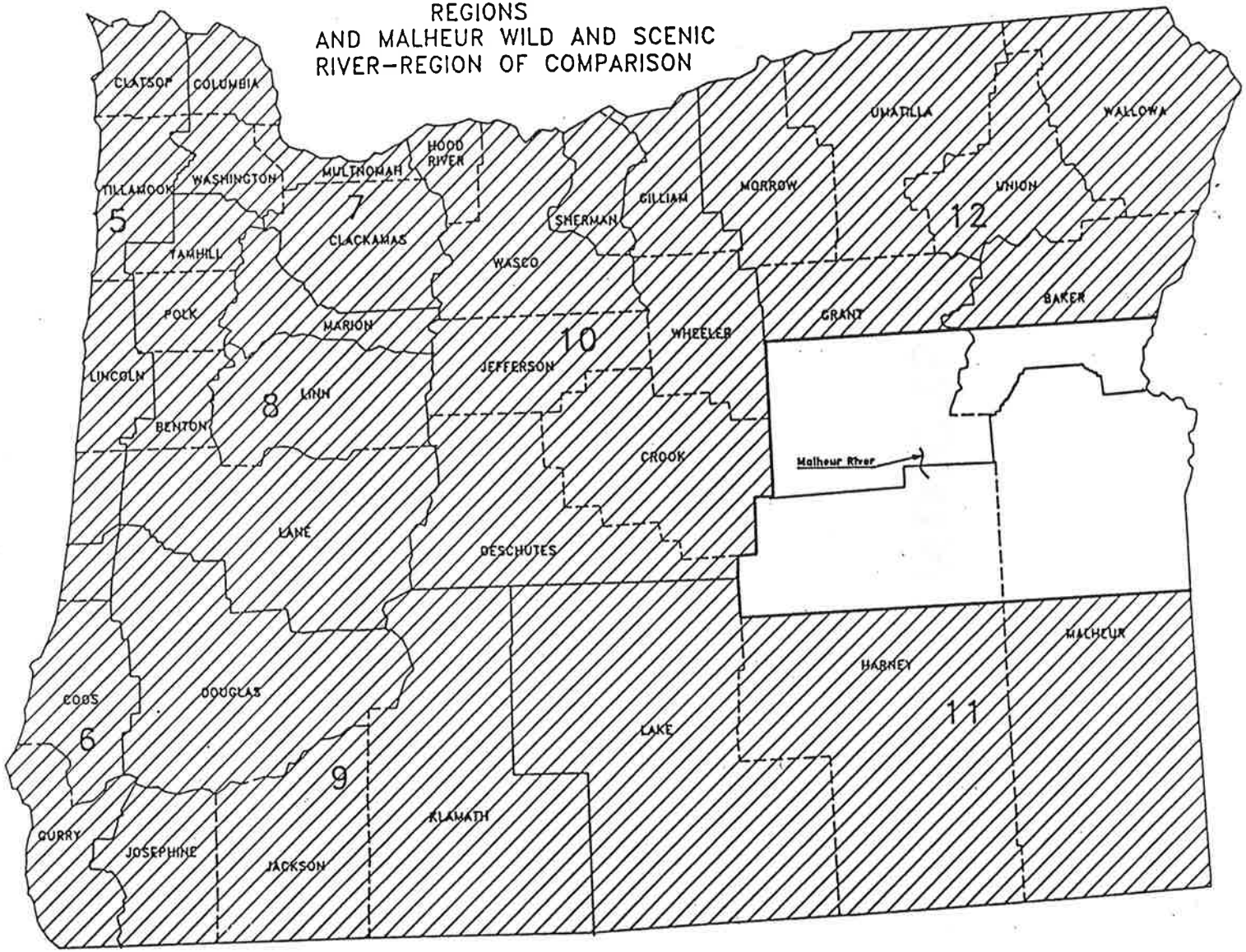
Finding

The Malheur River corridor contains plant communities common to many other rivers and areas in the region, and no unique species or populations have been located. Though some plants growing within the corridor may have been traditionally used by Native Americans during historical times, this use has not been documented as important at this time. (See the Traditional Use section for more information). **Therefore, the botany/ecology resources are determined not to be outstandingly remarkable values.**

APPENDICES

VICINITY MAP

OREGON SCORP PLANNING
REGIONS
AND MALHEUR WILD AND SCENIC
RIVER–REGION OF COMPARISON



RECREATION RESOURCES

MALHEUR WILD AND SCENIC RIVER CORRIDOR

by

CAROLE GILLESPIE, Recreation Forester

August 1991

The Malheur River corridor provides a variety of recreational opportunities. Based on field observation and informal use records, Malheur River receives a moderate amount of use beginning in mid-June and continuing to end of November. A large number of the visitors are from the local area, although many visitors come from outside the geographical area, primarily during hunting season. In the majority of the case, the river and its related values are not the primary attractions for these hunters. The corridor comes under three types of big-game hunting seasons - deer, elk and antelope. The majority of the hunters camps are outside of the river corridor due to topography. The only motorized dispersed camping opportunities within the corridor are at the two dispersed camp areas in Segment A.

Along with hunting use, visitors travel to this area for fishing, swimming, camping, backpacking, horseback riding, photography, picnicking and nature study.

Dispersed camping associated with fishing is by far the heaviest use. Access to the river is limited within the river corridor, therefore, the use is concentrated at the dispersed camping sites located at Burnt Bridge Camp and Malheur Ford Camp.

Some of the anglers using this river come from out of the region to catch stocked rainbow and native redband, Eastern brook, Dolly Varden (bull trout) trout and whitefish. Since fish are stocked at Malheur Ford Camp, most of the fishing success is downstream in Segment B. The hiking aspect of the fishing use in the reach from Malheur Ford Camp south is also an important part of their experience.

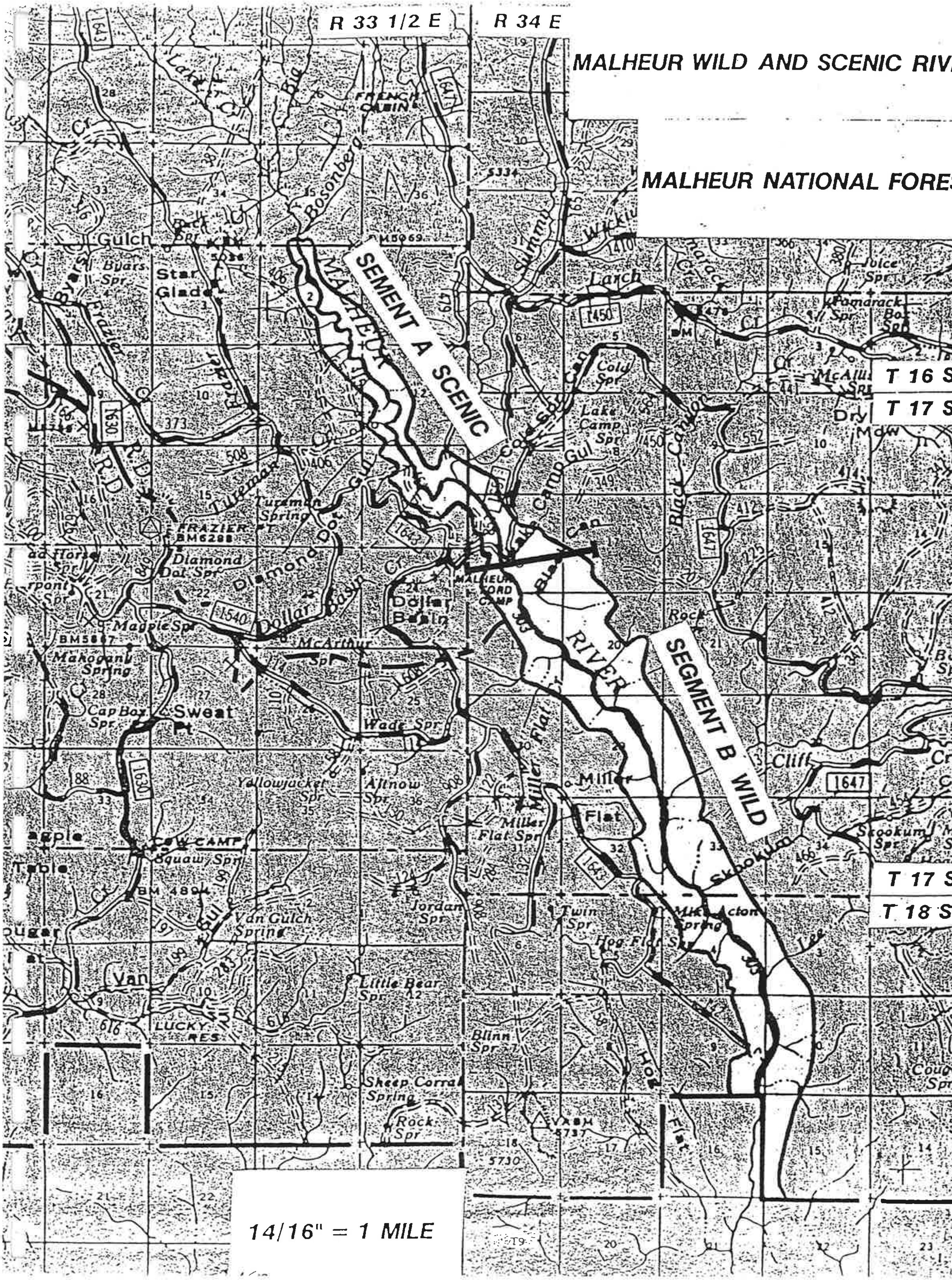
White water boating and canoing is not popular on this river, however some limited use occurs some years. This use is limited by difficult access, unpredictable flows of short duration, and log jams and other obstructions in the river.

Winter sports opportunities are limited by the topography and road access within the corridor. The only groomed snowmobile trail within the corridor is on Forest Road 902, which accesses Burnt Bridge Camp. The river crossing on this snowmobile trail is on private land adjacent to the National Forest boundary to the north, since the river seldom freezes to the point where snowmobile crossing is safe. The attraction for snowmobiling in the area is more for the open play areas in and around Dollar Basin rather than the river. Other winter sports activities such as cross-country skiing or snowshoeing is limited in the entire corridor due to the distance from the nearest access point.

Very little of the river is acessible by road due to the steep canyon walls that characterize the majority of the river corridor. Forest roads 902 and 1651 cross the river at Burnt Bridge Camp and Malheur Ford Camp, respectively. The unroaded 6 mile section of the Malheur River (ROS Class Semi-Primitive Non-Motorized) is paralleled by the Malheur River Trail #303, a National Recreation Trail. It provides anglers, hikers and hunters access from early spring to late fall. Forest Road 142 off of road 1643 accesses the southern trailhead.

Recreation developments in the corridor are limited and primitive in design. There are no campgrounds within the corridor that provide a developed camping experience. Malheur Ford and Burnt Bridge Camps provides a more primitive camping experience as only toilets and picnic tables are provided. There are few other dispersed camping areas in the river corridor. The two trailheads within the corridor are minimally developed. The trailhead at Malheur Ford Camp provides informational signing and limited parking. The trailhead at the south end of the trail provides a horse ramp and parking, but no informational signing.

Very few recreational improvements have been identified in the Forest Plan for the Malheur River corridor. Planning and development for the construction of 5 miles of the upper portion of the Malheur River trail is scheduled for 1996-2000. There are limited opportunities to increase the types of recreation experiences in the corridor that could potentially attract visitors from outside the geographic region and enhance their recreational experiences.


MALHEUR WILD AND SCENIC RIVE
MALHEUR NATIONAL FORES
R 33 1/2 E
R 34 E
T 16 S
T 17 S
T 17 S
T 18 S
SEMENT A SCENIC
SEGMENT B WILD
MALHEUR
RIVER
MALHEUR FORD CAMP
14/16" = 1 MILE

MALHEUR RIVER

Visual Resource - Technical Report

Prepared by
Stephen Keegan
Landscape Architect

Upper Portion, Segment A, from the Forest Boundary to Malheur Ford

The river corridor begins at the edge of Logan Valley, approximately 5000 ft. in elevation, with gently rolling hills paralleling it. From the river, the Strawberry Mountains are visible to the north. Small rock outcrops jut out along the river; vegetation is a mixture of sage brush, juniper, and ponderosa pine.

This landform rapidly changes and the river descends through a series of riffles with few pools, into a shallow narrow canyon. Rock outcrops are larger and more evident. The vegetation is similar to the upper end of this segment, but the ponderosa pine trees are larger and closer to the river. The bark of the ponderosa pine and exsposed rock surfaces present a richness of brown tones which reflects in the calm/slower waters. These colors, in contrast with the surrounding vegetation and seasonal wildflowers are much more evident in the landscape. The overall setting is that of an enclosed intimate landscape with the focus on the river.

Views along this segment are limited to the river, scattered vegetation, and exposed rocky canyon walls; views of the middleground are few. Access for recreationists is limited to the north and south ends, and at isolated locations along the rim. Human alterations are not evident. Overall this segment provides a high degree of visual diversity in landform, rockform, and vegetative patterns. The waterforms are a substantial part of the landscape. From the forest boundary to Malheur Ford the river has a Distinct Variety Class.

Lower Portion, Segment B, from Malheur Ford to the Forest Boundary

The river descends into a deep, enclosed canyon landform. Horizontal patterns from past volcanic flows are evident on the sides of the canyon. Towering crags, cliffs, long talus slopes, stringers of vegetation, and steep ravines provide variety and form a highly textured, strong vertical element in the landscape. The surrounding vegetation is diverse including ponderosa pine, douglas fir, larch, willow, and other deciduous plants. There is a wide variety of color: greens, browns, and grays accented by the blue-green water moving through the landscape. Variety in the form of light, seasonal color change in vegetation (larch trees turning gold in the fall and spring wildflowers), and observer position (along the river or the canyon rim) are important variables within this landscape.

Along the Malheur River Trail, views are limited to the river, vegetation, and the towering canyon walls. In addition, there are panoramic views of the deep canyon from isolated locations along the rim of the canyon. Access for recreationists is limited to the north and south ends of the Malheur River Trail, and at isolated locations along the rim. Overall, this segment provides a high degree of visual diversity in landform, rockform, and vegetative patterns. From the Malheur Ford to the forest boundary the river has a Distinct Variety Class.

United States Department of Agriculture | Forest Service | Malheur NF

Reply to: 2350 WILD AND SCENIC RIVER PLANNING Date: May 24, 1989

Subject: GEOLOGY OF THE MALHEUR RIVER

To: PLANNING FILES

The Wild and Scenic portion of the Malheur River follows adjacent to the edge of, or through the interior of a downthrown block (graben) area that lies between two south-southeast trending faults. Logan Valley lies between these same faults, which extend southward beyond the Forest boundary. The bedrock materials along the river canyon walls from Bosenberg Creek to the Forest boundary consist of Miocene- to early Pliocene-age volcanic flow rocks of the Strawberry Volcanics Formation.

The source of the lavas that form the Strawberry Volcanics Formation included several shield volcanos and numerous smaller vents in the vicinity of Strawberry and Lookout Mountains. The volcanic activity included a long series of eruptive events, with the most intensive period of activity occurring between 12 million and 15 million years ago. During this period, the area was undergoing tectonic extension forces, literally pulling the surface apart in east and west directions. These tensional forces resulted in cracks, faults, and fissures, through which the lavas were extruded.

The combined activity has resulted in a series of essentially horizontal lava flows layered on top of one another. The individual layers rarely exceed 40 feet in total thickness, and they are typically separated by relatively thin 'interflow' layers composed of scorched soils, volcanic ash, and rock materials incorporated into the base of the fluid lavas.

The rock in these flows ranges from fine- to medium-grained basalt and basaltic andesite. The rocks are usually medium- to pale-grey in color, but they are commonly streaked or mottled with lighter grey, green, and reddish brown mineral concentrations. Some of the flows have a massive columnar structure, with columns of up to 8 feet in diameter. The columnar structure results from the cooling/shrinkage cracks that developed perpendicular to the flow surface. Other flows developed a distinctive platy texture, with individual plates ranging from about 1/2 to several inches in thickness. The platy jointing probably results at least partially from flow laminations derived from shear failures during movement. Many outcrops exhibit some of both textures, and have platy materials near the top of the flow, and become more massive with increasing depth.

These volcanic materials are best exposed where the river has carved the deepest canyon, so the best exposures are found along the steep canyon walls south of the Malheur Ford. Total relief from the top of the canyon to the river level at any one site in this section ranges from about 300 to about 1000 feet. Some of the more prominant features along this section include rock outcrops, talus slopes, and areas above and adjacent to the river channel that have relatively flat slopes resulting from mass wasting or slope failures.

In some areas the outcrops form vertical or near vertical cliffs as high as 50 feet. In others, differential weathering has creating pinnacles and windows or small arches through portions of the outcrop. Along the downslope margin of many outcrops, some of the columns or other large blocks of rock have cracked and tilted and/or slipped away from the main outcrop. Massive talus slopes exist at the base of or below most of the outcrops. Some of the larger talus slopes extend for several hundred feet or more down the slope, and the base of many of them extends into the river bed. Some of the smaller talus chutes extend from the top of the canyon walls all the way to the river bed. Many of these talus slopes probably have considerable materials movement each year, particularly those where the river is actively eroding material from the base of the deposit.

The mass movement deposits or slope failure areas range from relatively small to greater than 40 acres in size. These have occurred where the river has undercut the side of the canyon until it became unstable enough to slump or fail as a large block of material. In some areas these slide deposits were massive enough to have buried the old river channel, and forced the river over against the side of the opposite canyon wall. In these areas the river channel direction changes abruptly, often at nearly a right angle. Some of the changes in channel direction could result from differences in the erosion resistance of the local bedrock materials, but most of the larger ones are the result of massive slope failures.

Mark Lysne

MARK LYSNE

GEOLOGIST

MALHEUR RIVER

DRAFT
FISHERIES INFORMATION FOR
RESOURCE ASSESSMENT

Richard Gritz
Forest Fisheries Biologist

The Malheur River is an important recreational fishing area, both locally and regionally. Game fish found in the Malheur River within the Wild & Scenic River designation include native redband trout, Oncorhychhus sp, hatchery rainbow trout, O. mykiss, brook trout, Salvelinus fontinalis, and mountain whitefish, Prosopium williamsoni.

FISH SPECIES/FISHERIES

The name redband has been applied to several races of inland rainbow trout. Electrophoretic analysis indicates that this large group of fish is distinct from the coastal rainbow trout, but populations also differ significantly enough from one drainage to another to be considered separate subgroups. In 1981, redband trout from the Malheur (Wolf and Bear Creeks) and Silvies drainages were examined using electrophoresis and histochemistry (Gall et al. 1981). The conclusion was that these populations have a high probability of being genetically distinct from each other. They share a common ancestry with wild rainbow from the McCloud and Goose Lake systems, but also have unique characteristics. Determining their status awaits further genetic analysis.

The catch rate of trout in the Malheur River is high, but most of those caught are small. Investigations of the biological characteristics and life history of redband trout in southeast Oregon (Kunkel 1976; Hosford and Pribyl 1983; Pribyl and Hosford 1985) indicate that in a stream environment they usually mature by the third or fourth year of life at a small size and then die following spawning. Creel surveys done in 1989 indicated that 69% of the trout over 8 inches long caught in the Middle Fork were of hatchery origin. This seems to be consistent with the expectation that most of the wild redband trout do not get very large.

Yearling hatchery rainbow trout (Cape Cod stock) have been planted in the Malheur, North Fork Malheur and Little Malheur Rivers on National Forest land , since the mid 1950s. Historic total stocking was about 6,000 fish per year. In 1990, ODFW completed the Malheur River Basin Fish Management Plan. One of the goals identified in that plan is "protecting and enhancing indigenous fish, specifically bull trout and redband trout." To address this goal, while maintaining a viable recreational fishery, stocking levels were reduced to: 1100 fish to the Malheur at the Malheur Ford, 1100 fish to the North Fork at the North Fork Campground, and 800 fish to the Little Malheur at the 16 Road.

Brook trout, Salvelinus fontinalis, are not being stocked now, but they are an introduced species. They are reproducing naturally and they are taken in the

recreational fishery. They tend to stunt at a small size, so their value to the fishery is reduced.

Some mountain whitefish are also taken in the recreational fishery, but most of the catch of this species is incidental to trout fishing.

Bull trout, Salvelinus confluentus, distribution in the Malheur River subbasin appears to be generally limited to tributary streams above Logan Valley. None were found below Logan Valley in two low intensity surveys by ODFW in 1982 and 1989. However, there are still occasional reports of people catching bull trout in this portion of the river. This low population density for bull trout appears to be due to the unsuitability of the habitat, especially warm summer water temperatures. Competition and hybridization with brook trout, S. fontinalis, may have also limited overall distribution of bull trout in the basin. It is possible that some bull trout move down into the main river during the winter, after spawning, but we have no survey information to confirm or deny this.

Bull trout and redband trout are listed as Category 2 species under the Threatened and Endangered Species Act (U.S. Fish and Wildlife Service 1985). This means more information is needed on these species before a determination of threatened or endangered status can be made. They are also on the Regional Forester's (Region 6) sensitive species list.

Prior to construction of reservoirs, the Malheur basin supported runs of chinook salmon, Oncorhychhus tshawytscha, and steelhead trout, O. mykiss. The Warm Springs dam on the lower Malheur River, which was constructed in 1919, has no fish passage facilities and ended anadromous runs into this stream. Brownlee Dam, which was constructed on the Snake Rive in 1958, ended migration of anadromous species to the entire upper Snake River basin (Pribyl and Hosford 1985).

Another anadromous species that may have been present historically in the Malheur River basin is the Pacific lamprey eel, Entosphenus tridentatus. It is known to have existed in the Owyhee and Snake Rivers.

There are no known "usual and accustomed" fishing sites within the Wild & Scenic portion of the river. There probably were sites in Logan Valley and the Drewsey area. It appears that these sites were associated with the anadromous fish runs.

A fish species list for the Wild & Scenic portion of the Malheur River is included in Appendix A.

FISH HABITAT

For the purpose of general discussion, I will break down fish habitat into three major components: water quality, food, and physical habitat structure. We do not have much quantified field survey data to base this description on, so much of the description will be based on general observations of biologists and others who have worked in the area and/or fished the river. A physical habitat survey has been completed, but the data from that survey has not yet been summarized and analyzed. That work will be done this fall and winter.

Water quality in the Wild & Scenic portion of the Malheur River is affected by activities in the upper watershed, especially in Logan Valley (see the Hydrologic/ Water Quality report by Dave Kretzing for more specifics). However, the relatively low numbers of cyprinids (minnows) and catostomids (suckers), and the absence of the warm water game fish common in lower reaches of the river, indicate that water quality in the upper segment of the Wild & Scenic River is still relatively good year around, when compared to most other rivers of comparable size in the region.

Water temperature does increase as the river flows through the Wild & Scenic area, so that in the lower reaches, it is a limiting factor for all of the resident salmonid species. This could be partially mitigated by providing for more woody riparian vegetation, which could provide partial shading of the river. Because of the width of the river and it's general north-south orientation, only a portion of it could be shaded, but there is some potential for improvement due to management. It would probably be necessary to change management in Logan Valley and in tributaries such as Summit Creek to achieve a substantial change in water temperature within the Wild & Scenic portion of the river.

Bull trout were identified as far downstream as Wolf Creek in 1955. Numbers were not identified, but there is an indication that there were more bull trout farther down the river than the current distribution. The most likely explanation for this change would be a change in water quality. Possible contributing factors which could account for such a change include: changes in water use (irrigation) and riparian vegetation in Logan Valley, timber harvest, roading and livestock grazing in the upper watershed. It would be difficult to assess the changes over the last 30 to 40 years due to any one of these factors.

Food does not appear to be a limiting factor for salmonids. We have not done quantitative sampling of macroinvertebrates in the river, but general observations are that the species composition and abundance of the macroinvertebrate community indicates good water quality and ample food for resident fish species. Mayflies, stoneflies and caddisflies are all common and abundant.

Habitat components that provide physical habitat diversity appear to be limiting throughout the Wild & Scenic portion of the river. The river is limited in high quality pool habitat. Two factors which contribute to this are a lack of large wood in the channel, and a lack of stable undercut banks.

I am not sure what the reason(s) are for the low frequency of large wood in the river. The 1964 flood may have accounted for some of this, but without a pre-1964 stream survey, that would be difficult to verify. There is some anecdotal evidence that there has been a loss of some large pool habitat during that time. Common historical reasons for a lack of large wood in rivers include snagging for navigation, logging and the use of splash dams for log transport. There is evidence of a splash dam at the Malheur Ford, but there is little evidence of historical logging along the river. I have not seen records of snagging for navigation. If the low frequency of large wood in the river is indeed a "natural" condition, we can probably do little in terms of management to increase this habitat component, without doing it artificially with engineered structures.

The lack of stable undercut banks can in many cases be attributed to historic livestock use of the river corridor. This can occur as a result of reducing the amount of woody vegetation along the streambank by browsing, or by physically breaking down the bank by walking on it. There is evidence of both situations occurring. There is a potential to improve this component of fish habitat with management.

/Richard Gritz/
Sept. 27, 1991

APPENDIX A

Fish Species List for the Wild & Scenic River Portion of the Malheur River:

Trouts--Family Salmonidae	
redband trout	Oncorhynchus sp.
rainbow trout (hatchery)	Oncorhynchus mykiss
brook trout	Salvelinus fontinalis
bull trout	Salvelinus confluentus
mountain whitefish	Prosopium williamsoni
Minnows--Family Cyprinidae	
longnose dace	Rhinichthys cataractae
speckled dace	Rhinichthys osculus
redside shiner	Richardsonius balteatus
northern squawfish	Ptychoeilus oregonensis
chiselmouth	Acrocheilus alutaceus
Suckers--Family Catostomidae	
bridgelip sucker	Catostomus columbianus
largescale sucker	Catostomus macrocheilus
Sculpins--Family Cottidae	
mottled sculpin	Cottus bairdi

MALHEUR RIVER

ASSESSMENT OF WILDLIFE VALUES IN THE
WILD AND SCENIC SECTION

Joan M. Suther, Wildlife Biologist

The Wild and Scenic section of the Malheur River is administered by the Malheur National Forest, and includes about twelve river miles from Bosenburg Creek to the forest boundary.

The area was surveyed between May and August of 1991. This time period was sufficient to view or observe sign of most animals that occur in the area. It was also an appropriate time period in which to determine if habitat was available for those animal species not readily observed.

The north half of the River (roughly 6 miles), from Logan Valley south to Malheur Ford, is designated as the Scenic section of the River. Generally, long sideslopes characterize this section, grading slowly down to the river. Numerous sand and gravel bars distinguish this stretch from the lower Wild section of the River. It is readily accessible by numerous species of wildlife, including species associated with Great Basin uplands, streamside and marsh riparian areas, and ponderosa pine and mixed conifer forests.

The southern portion (roughly 6 miles), from Malheur Ford south to the Forest boundary, is designated as the Wild section of the River. Steep slopes create a deep canyon through which the Malheur River travels. These slopes are broken by cliffs and rockslides, and vegetated by a wide variety of plant communities.

Just north of Malheur Ford, and active osprey nest has been documented. From the many sightings reported this summer, the adults spent considerable time finding prey to feed their young! While not classified as a rare species, it is an uncommon species on the forest. There are few areas within the Malheur NF which possess the habitat requirements of osprey. This is certainly one of the southernmost locations for osprey within the Blue Mountains.

Forested sites intermingle with non-forest sites throughout the River corridor. The edge habitat in this area supports a wide variety of passerine birds, raptors, small mammals, and big game. Other factors adding diversity to the corridor are the old burns, varying aspect, and slope of uplands and riparian habitat. The burned areas provide snags, raptor hunting perches, and early seral stage (grass/forb/shrub) habitat. Differing aspects offer a variety of microclimates, providing niches for many species. Upland and riparian slope differences are particularly important in this corridor, and play a key role in the species diversity noted here. This corridor has the potential to be occupied by nearly all wildlife species found on the Malheur NF.

Within the wild section, the steep and rocky canyon walls offer areas remote from human presence, allowing species requiring solitude to exist.

Among these species, the cougar is probably the most well-known. Cougar sign was found within the wild section. There is also excellent roosting and nesting habitat for bald eagles within the corridor. Reports of individual eagles have been made, but there are no known roosts or nests within the corridor. The Malheur River is recognized in the Pacific States Bald Eagle Recovery Plan as a potential nest area. I believe the area is fully capable of supporting a nesting pair of bald eagles, based on fisheries, waterfowl, and small mammal populations; as well as nest site characteristics. Other species use the corridor in response to human presence as an escape area; particularly deer and elk during hunting season.

Game animals, including mule deer, antelope, Rocky Mountain elk, and bear are commonly observed in the corridor. Antelope are more likely to be seen in the uplands and the flats above the Wild section. Game birds are less commonly observed, although sage grouse (a sensitive species) has been recently documented west of the Wild section, about two miles from the corridor.

The corridor also has stands of old growth ponderosa pine and mixed conifer. These areas are increasingly rare, but probably very similar to other old growth sites on the Malheur Forest. These areas <u>are</u> unique in their contiguity with other stands of large trees, the diversity of tree species, and the relatively unroaded nature of the corridor. The abundance of cavity dependent species within the area is certainly a reflection of high snag densities, both within old growth areas and throughout the corridor.

The trail from Hog Flat to the river passes through an open slope with a rich, colorful variety of flowers. Deer and antelope are commonly seen from the trailhead at the rim, and deer commonly bed along the upper section of the trail.

The Scenic section possessed only infrequent talus slopes, whereas the Wild section contained several types of rocky habitat. Talus provided habitat for a diverse group of small mammals and their predators. Large jumbled rock areas could easily support bobcat and cougar, and supported an interesting array of shrubs. The variety of plant communities in these rocky areas alone support passerine birds and small mammals in greater numbers here compared to the remainder of the forest.

<u>Species Occurrence</u>

The Wild and Scenic portion of the Malheur River supports habitat for an extremely diverse group of wildlife species, because of great variation in plant communities, elevation, and aspect. Appendices A - C report wildlife species expected to be found within the corridor. There are a few other species which may occur as vagrants or migrants in spring, winter, and fall (Thomas, et al, 1979).

Appendix A. Birds species documented or expected in the Malheur River Wild and Scenic Corridor.

CANADA GOOSE
MALLARD
GADWALL
WOOD DUCK
BARROW'S GOLDENEYE
COMMON MERGANSER
TURKEY VULTURE
NORTHERN GOSHAWK
COOPER'S HAWK
SHARP-SHINNED HAWK
MARSH HAWK
ROUGH-LEGGED HAWK
FERRUGINOUS HAWK
RED-TAILED HAWK
SWAINSON'S HAWK
GOLDEN EAGLE
BALD EAGLE
OSPREY
PRAIRIE FALCON
KESTREL
BLUE GROUSE
WESTERN SAGE GROUSE
RUFFED GROUSE
GREAT BLUE HERON
BLACK-CROWNED NIGHT HERON
SANDHILL CRANE
VIRGINIA RAIL
SORA
KILLDEER
SPOTTED SANDPIPER
COMMON SNIPE
ROCK DOVE
MOURNING DOVE
SCREECH OWL
GREAT-HORNED OWL
LONG-EARED OWL
SAW-WHET OWL
FLAMMULATED OWL
POOR-WILL
COMMON NIGHTHAWK
CALLIOPE HUMMINGBIRD
BLACK-CHINNED HUMMINGBIRD
RUFOUS HUMMINGBIRD
BELTED KINGFISHER
COMMON FLICKER
PILEATED WOODPECKER
LEWIS'WOODPECKER
WHITE-HEADED WOODPECKER
WILLIAMSON'S SAPSUCKER
RED-NAPED SAPSUCKER
HAIRY WOODPECKER
DOWNY WOODPECKER
NORTHERN THREE-TOED WOODPECKER
WESTERN KINGBIRD
SAY'S PHOEBE
TRAIL'S FLYCATCHER
HAMMOND'S FLYCATCHER
WESTERN FLYCATCHER
WESTERN WOOD PEEWEE
OLIVE-SIDED FLYCATCHER
HORNED LARK
CLIFF SWALLOW
VIOLET-GREEN SWALLOW
TREE SWALLOW
BANK SWALLOW
ROUGH-WINGED SWALLOW
STELLER'S JAY
GRAY JAY
BLACK-BILLED MAGPIE
CLARK'S NUTCRACKER
COMMON RAVEN
COMMON CROW
BLACK-CAPPED CHICKADEE
MOUNTAIN CHICKADEE
COMMON BUSHTIT

Appendix A. Continued.

WHITE-BREASTED NUTHATCH
RED-BREASTED NUTHATCH
PYGMY NUTHATCH
BROWN CREEPER
DIPPER
HOUSE WREN
ROCK WREN
CANYON WREN
LONG-BILLED MARSH WREN
SAGE THRASHER
AMERICAN ROBIN
VARIED THRUSH
TOWNSEND'S SOLITAIRE
HERMIT THRUSH
WESTERN BLUEBIRD
MOUNTAIN BLUEBIRD
GOLDEN-CROWNED KINGLET
RUBY-CROWNED KINGLET
WATER PIPIT
BOHEMIAN WAXWING
CEDAR WAXWING
LOGGERHEAD SHRIKE
SOLITARY VIREO
WARBLING VIREO
ORANGE-CROWNED WARBLER
NASHVILLE WARBLER
YELLOW WARBLER
YELLOW-RUMPED WARBLER
TOWNSEND'S WARBLER
BLACK-THROATED GRAY WARBLER
YELLOWTHROAT
YELLOW-BREASTED CHAT
MACGILLIVRAY'S WARBLER
WILSON'S WARBLER
AMERICAN REDSTART
WESTERN MEADOWLARK
RED-WINGED BLACKBIRD
BREWER'S BLACKBIRD
NORTHERN ORIOLE
BROWN-HEADED COWBIRD
WESTERN TANAGER
BLACK-HEADED GROSBEAK
EVENING GROSBEAK
LAZULI BUNTING
PURPLE FINCH
CASSIN'S FINCH
HOUSE FINCH
PINE SISKIN
AMERICAN GOLDFINCH
RED CROSSBILL
GREEN-TAILED TOWHEE
RUFOUS-SIDED TOWHEE
SAVANNAH SPARROW
VESPER SPARROW
SAGE SPARROW
DARK-EYED JUNCO
CHIPPING SPARROW
WHITE-CROWNED SPARROW
FOX SPARROW
LINCOLN'S SPARROW
SONG SPARROW

Appendix B: Mammal Species documented or expected in the Malheur River Wild & Scenic Corridor.

Scientific Name	Common Name	Reproduces	Potential for Occurrence
Family Soricidae			
Sorex preblei	Preble's Shrew	Y	L
Sorex vagrans	Vagrant Shrew	Y	H
Sorex obscurus	Dusky Shrew	Y	H
Sorex palustris	Northern Water Shrew	Y	M
Sorex merriami	Merriam's Shrew	Y	M
Family Vespertilionidae			
Myotis lucifugus	Little Brown Myotis	Y	H
Myotis yumanensis	Yuma Myotis	Y	L
Myotis evotis	Long-eared Myotis	Y	L
Myotis thysanodes	Fringed Myotis	Y	L
Myotis volans	Long-legged Myotis	Y	M
Myotis californicus	California Myotis	Y	H
Myotis leibii	Small-footed Myotis	Y	L
Lasionycteris noctivagans	Silver-haired Bat	Y	M
Pipistrellus hesperus	Western Pipistrelle	Y	H
Eptesicus fuscus	Big Brown Bat	Y	H
Lasiurus cinereus	Hoary Bat	Y	M
Euderma maculatum	Spotted Bat	Y	M
Plecotus townsendi	Western Big-eared Bat	Y	L
Antrozous pallidus	Pallid Bat	Y	M
Family Sciuridae			
Eutamias minimus	Least Chipmunk	Y	H
Eutamias amoenus	Yellowpine Chipmunk	Y	H
Marmota flaviventris	Yellow-bellied Marmot	Y	L
Spermophilus townsendi	Townsend Ground Squirrel	Y	H
Spermophilus beldingi	Belding Ground Squirrel	Y	H
Spermophilus columbianus	Columbian Ground Squirrel	Y	H
Spermophilus lateralis	Golden-mantled Ground Squirrel	Y	H
Tamiasciurus douglasi	Chickaree	Y	L
Glaucomys sabrinus	Northern Flying Squirrel	Y	H
Family Geomyidae			
Thomomys talpoides	Northern Pocket Gopher	Y	H
Thomomys townsendi	Townsend Pocket Gopher	Y	L

Appendix B: Mammal Species documented or expected in the Malheur River, Wild & Scenic Corridor. (cont'd)

Scientific Name	Common Name	Reproduces	Potential for Occurrence
Family Heteromyidae			
Perognathus parvus	Great Basin Pocket Mouse	Y	H
Dipodomys ordi	Ord Kangaroo Rat	Y	L
Family Castoridae			
Castor canadensis	Beaver	Y	M
Family Cricetidae			
Reithrodontomys megalotis	Western Harvest Mouse	Y	M
Peromyscus crinitis	Canyon Mouse	Y	L
Peromyscus maniculatus	Deer Mouse	Y	H
Onychomys leucogaster	Northern Grasshopper Mouse	Y	L
Neotoma cinerea	Bushy-tailed Woodrat	Y	H
Clethrionomys gapperi	Gapper Red-backed Vole	Y	L
Phenacomys intermedius	Heather Vole	Y	L
Microtus montanus	Mountain Vole	Y	M
Microtus longicaudus	Long-tailed Vole	Y	H
Microtus richardsoni	Water Vole	Y	L
Lagurus curtatus	Sagebrush Vole	Y	M
Family Zapodidae			
Zapus princeps	Western Jumping Mouse	Y	M
Family Erethizontidae			
Erethizon dorsatum	Porcupine	Y	H
Family Ochotonidae			
Ochotona princeps	Pika	Y	M
Family Leporidae			
Sylvilagus idahoensis	Pygmy rabbit	Y	L
Sylvilagus nuttallii	Nuttall's cottontail	Y	H
Lepus americanus	Snowshoe hare	Y	M
Lepus townsendi	Whitetail jackrabbit	Y	L
Lepus californicus	Blacktail jackrabbit	Y	H

Appendix B: Mammal Species documented or expected in the Malheur River Wild & Scenic Corridor. (cont'd)

Scientific Name	Common Name	Reproduces	Potential for Occurrence
Family Canidae			
Canis latrans	Coyote	Y	H
Vulpes vulpes	Red fox	Y	L
Family Ursidae			
Ursus americanus	Black bear	Y	H
Family Procyonidae			
Procyon lotor	Racoon	Y	L
Family Mustelidae			
Martes americana	Marten	Y	L
Mustela erminea	Short-tailed weasel	Y	H
Mustela frenata	Long-tailed weasel	Y	H
Mustela vison	Mink	Y	H
Gulo gulo	Wolverine	?	L
Taxidea taxus	Badger	Y	H
Mephitis mephitis	Striped skunk	Y	L
Lutra canadensis	River otter	Y	H
Family Felidae			
Felis concolor	Mountain lion	Y	H
Lynx rufus	Bobcat	Y	H
Family Cervidae			
Cervus elaphus	Rocky Mountain elk	Y	H
Odocoileus hemionus	Mule deer	Y	H
Odocoileus virginianus	White-tailed deer	N	L
Family Antilocapridae			
Antilocapra americana	Pronghorn	Y	H

Appendix C: Reptile & Amphibian Species documented or expected in the Malheur River Wild & Scenic Corridor.

Scientific Name	Common Name	Reproduces	Potential for Occurrence
Family Ambystomatidae			
Ambystoma macrodactylum	Long-toed Salamander	Y	H
Family Pelobatidae			
Scaphiopus intermontanus	Great Basin Spadefoot Toad	Y	H
Family Bufonidae			
Bufo boreus	Western Toad	Y	H
Family Hylidae			
Hyla regilla	Pacific Treefrog	Y	H
Family Ranidae			
Rana pretiosa	Western Spotted Frog	Y	H
Rana pipiens	Leopard Frog	Y	M
Family Iguanidae			
Sceloporus occidentalis	Western Fence Lizard	Y	M
Sceloporus graciosus	Sagebrush Lizard	Y	M
Uta stansburiana	Side-blotched Lizard	Y	L
Phrynosoma douglassi	Short-horned Lizard	Y	M
Family Scincidae			
Eumeces skiltonianus	Western Skink	Y	M
Family Teiidae			
Cnemidophorus tigris	Western Whiptail	?	L
Family Boidae			
Charina bottae	Rubber Boa	Y	L
Family Colubridae			
Coluber constrictor	Yellow-bellied Racer	Y	M
Pituophis melanoleucus	Gopher Snake	Y	H
Thamnophis sirtalis	Common Gartersnake	Y	H
Thamnophis elegans	Western Terrestrial Gartersnake	Y	M
Family Viperidae			
Hypsiglena torquata	Night Snake	Y	L
Crotalus viridis	Western Rattlesnake	Y	H

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Malheur River Wild and Scenic River
Wildlife Resource Assessment

12/2/91

Addendum

This addendum will further address the wildlife habitat values found within the Wild and Scenic portion of the Malheur River.

The most significant wildlife values of the corridor are 1) the link that the corridor provides between two physiographic provinces, 2) the presence of large areas of old growth or mature forests, which are inhabited by a wide variety of primary cavity excavators, 3) the relatively unroaded condition of the area, particularly in the Wild section, and 4) the presence of potential habitat for Threatened, Endangered or Sensitive species.

The link between the provinces is somewhat important as a wildlife travel corridor, but is more striking in that it is intact, with little evidence of land management activities. This riparian ecotone between the Great Basin and the Blue Mountains is diverse in plant communities and thereby in wildlife species.

Large connected areas of old growth or mature forests are important specialized habitats for a number of species. Most notable in the case of the Malheur River are the high numbers of woodpeckers, and the diversity of species found within a small area. The river corridor supports strong populations of all woodpeckers known to occcur on the Malheur National Forest. The variable sizes and high density of snags is the key to the species diversity of the corridor. Other wildlife species present in response to old growth characteristics are secondary cavity users, big game animals seeking thermal cover and interior forest dwellers.

The steep canyon walls have essentially prohibited road construction in the corridor. Because of this, animals requiring solitude, or those that move out of areas in response to traffic are still present along the river.

Although no Threatened or Endangered wildlife species were observed during surveys in 1991, habitat is present for several species, including Peregrine falcon and bald eagle. I consider the habitat to be excellent for both species, and would anticipate that the corridor could support both species. In the case of the bald eagle, upon full recovery of the species, I would expect this corridor to be occupied. Peregrine falcons would be more likely to become established through introduction/hacking programs.

S/ JOAN Sutherland

Technical Report on Cultural Resources
for the Malheur Wild and Scenic River

by
Suzanne Crowley Thomas
Forest Archaeologist

revised, Jan. 1992

Prehistoric Resources

There have been 8 prehistoric sites previously recorded in the river corridor. Most appear to represent specialized task activity areas such as the later stages of lithic reduction, tool rejuvenation, and faunal procurement and processing sites. These locations contain obsidian, basalt, and CCS debitage, as well as a limited number of projectile points, 1 scraper, and miscellaneous biface fragments. One location represents an uncommon site type, a basalt cobble source, which exhibits a high percentage of decortication flakes. One lithic scatter is quite a bit larger in size and may have functioned as a seasonally occupied camp. Information on the site record is too sketchy at the present time to say more than the site probably represents more extensive use. The river corridor undoubtedly served as a travel route as well and some of these sites may be associated with this travel, especially given their seemingly ephemeral nature.

However, limited ground visibility undoubtedly obscures some cultural material and may reduce the perceived size of the sites. While none have received subsurface testing, over half the records suggest that depth is likely or recommend testing. The only known diagnostically chronological materials are two Elko series projectile points, which suggest a Middle Archaic period of use and a Great Basin cultural orientation. Six of the sites are judged eligible for inclusion in the National Register of Historic Places due to their potential to yield information important in prehistory. They are not considered rare in the region of comparison. The sites have received some disturbance from logging, road construction, recreational use, and erosion, some of which is ongoing, but appear to maintain their integrity overall.

During a recently completed cultural resource survey of the river corridor, five more prehistoric sites were recorded. Two are relatively small lithic scatters of unknown function. Three are cambium-peeled trees, with one having a peel date of 1860. (Although this date falls within the historic period, peeled trees are categorized with prehistoric sites because they are considered to be a prehistoric tradition.) The lithic scatter sites are likely to be judged eligible for the National Register and the peeled trees are likely to be judged ineligible. Further information will be available when the survey report is completed.

Historic Resources

Three historic sites have previously been recorded in the river corridor. Two are small can dumps from the early 20th century that probably functioned as temporary camps for a limited amount of time and activity. One of these was judged to be a hunter's camp but the function of the other is unknown. Livestock raising or continuing use of the river corridor as a travel route may have been factors in this site's function. The third site is an earthen feature in the river at Malheur Ford which is the remains of a splash dam for

moving logs down river to a sawmill in the Drewsey area. Its construction pre-dates the 1920s. It is certainly a unique site for the region of comparison and is rare for eastern Oregon, as only 7 such sites have been documented. The dam is the only known historic site judged eligible for inclusion in the National Register of Historic Places.

The river corridor was contained within the Malheur Indian Reservation, which was in existence between 1872 and 1882. It is not known if there are sites in the river corridor related to this period.

During a recently completed cultural resource survey of the river corridor, one additional historic site was located. It appears to be the remains of a cabin of unknown age that was burnt over during a wildfire in 1989. It is unlikely to be eligible for the National Register.

Traditional Use/Cultural Values

The Malheur River area is known to have been used by the Northern Paiute, Umatilla, Cayuse, and Warm Springs peoples in historic times. Indian folks are known to have fished the river in recent times but other uses are unknown at present.

United States Department of Agriculture | Forest Service | Malheur NF

Reply to: 2350 River Management | Date: August 31, 1991

Subject: Watershed Resource Assessment for the Malheur River

To: Malheur River Analysis File (EA)

INTRODUCTION

Nomination of the Malheur River for inclusion in the federal Wild and Scenic River System, and successful passage of the study phase has resulted in the need to develop a management plan for the river. As a preliminary phase, an assessment of the existing resources is to be completed and documented. As the interdisciplinary process continues on into alternative development, additional documentation of environmental consequences, management prescriptions, and monitoring needs will be identified. This document is intended to fulfill the requirement for a resource assessment as a stand alone document for the water resources of the Malheur.

CLIMATE AND BASIN GEOMORPHOLOGY

The entire Malheur drainage rests on bedrock consisting predominantly of andesites and basalts of the Strawberry Volcanic Series, which are among the most resistant on the forest. Consequently, landforms within the basin are uniformly stable and are not prone to mass failures which generate large amounts of material into the stream system. Annual precipitation decreases from approximately 45" of rain and snow per year in the upper end of the drainage to as little as 15" per year where the river exits the forest. The majority of the precipitation occurs as snowfall and accumulates from November through April in the headwater regions of the drainage. Elevations within the drainage range from a high point of 8570 feet above sea level at the summit of Graham Mountain down to 4300 feet above sea level where the river exits the forest.

Tributary drainages in the upper portion of the Malheur are the primary source of water for the wild and scenic segments of the river. These drainages include those tributaries that flow into Logan Valley where they join to form the river. In particular, south flowing streams such as Big Creek and Lake Creek that originate in high glacial basins to the north of Logan Valley in the Strawberry Wilderness generate abundant flows of cool water. Broad gentle basins with deep glacial soils in the upper reaches of these streams combine with generous winter precipitation to facilitate snow accumulation and retention. Logan Valley is a broad flat valley that has filled with glacial outwash materials. Other major streams that join in Logan Valley to form the Malheur include Bosenberg Creek and Crooked Creek. The actual northern terminus of the Malheur is situated at the confluence of Big Creek and Bosenberg Creek near the southern end of Logan Valley.

Below Logan Valley, the Malheur basin changes character dramatically. Here, the basin is characterized by large dendritic tributaries that collect water outside the river canyon and occasionally break through to the river. This is the case

for Summit Creek on the east side of the drainage and Frazier Creek on the west side of the drainage. Other than these two streams, most tributaries between Logan Valley and Malheur Ford are confined to the river canyon and it's immediate vicinity and contribute very little flow other than in the spring of the year.

Below Malheur Ford, the drainage changes character again. From Malheur Ford to the Forest boundary, the drainage is characterized by large dry basins west of the river such as Hog Flat, and by deeply incised parallel drainages such as Cliff Creek and Black Canyon Creek that flow into the river from the east. The incised drainages east of the river contribute significantly to fall and spring flows, but little to summer low flows.

Soils are generally deeper in the northern part of the Malheur drainage, and shallower in the south. Low annual precipitation in the south also results in some areas that are not capable of supporting 50 percent ground cover. These areas are potential sources of sediment but comprise only 15 percent of the total basin. Rock armoring of slopes in many of these areas largely replace vegetation in the role of ground cover so that the over all risk of high sediment yields is not great.

Highly erosive soils with a high clay content are not common in the Malheur drainage, covering less than 5 percent of the total basin. As a result, water turbidities in the Malheur are generally low.

CHANNEL AND FLOODPLAIN MORPHOLOGY

Through the entire length of the wild and scenic segments, the gradient of the Malheur ranges from 1 to 2 percent. The river channel is relatively straight, with only occasional meandering and braiding, which is most prevalent in the reach between Logan Valley and Tureman Creek. Channel bottoms are well armored by small boulder and cobble sized materials that are derived from the resistant bedrock. Channel widths increase from 30 to 40 feet below Logan Valley to 40 to 50 feet wide in the lower reaches, as flow increases.

From Logan Valley to Tureman Creek, the river gently meanders through a slightly widened bottom that is bordered by gentle bluffs. A narrow floodplain exists that is never more than 2 to 4 times the channel width. An interesting feature along this reach occurs just below the confluence os Tureman Creek, where ground water flow intersects a low canyon wall to form a series of low waterfalls on the west side of the river.

Below Tureman Creek, the river enters a confining canyon and the floodplain narrows rapidly till it becomes little wider than the river itself. Occasional benches occur, but do not alter the confined nature of the river. Absence of the deep soils that occur in the upper basin result in a dramatic reduction in the amount of adjacent wetlands along the river. Some small localized wet areas occur at the confluences of the biggest tributary streams.

WATER QUALITY AND QUANTITY

As previously mentioned, favorable landforms and soil types have resulted in relatively low levels of sediment transport and turbidity in the Malheur.

Little actual flow data is readily available for this portion of the Malheur. However, a USGS guaging station is located on the river near Drewsey. While this station is well below the wild and scenic river segments and several large

tributaries add water to the river, the following data indicate the year round flow distribution in the Malheur. Data for the last four years is also included to roughly display the impacts of the recent drought on the river. Upstream water diversions greatly reduce the reliability of the information.

Largest Flood: 12,000 CFS 12/23/64

Lowest Flow: 0 CFS Various Times

The following data are mean daily flow values expressed in CFS.

	Avg. 1920-88	Avg. 1987-90 (Drought)
October	42.3	49.8
November	69.9	72.4
December	105.1	67.6
January	147.1	64.1
February	269.9	113.4
March	464.7	458.7
April	659.4	364.3
May	354.4	60.1
June	140.8	51.7
July	29.1	13.7
August	10.4	4.1
September	14.8	9.8
Annual	191	119

It is readily apparent that the recent drought has resulted in a dramatic reduction in stream flow in the Malheur.

Some additional instantaneous flow data was collected on the Malheur and some of it's tributaries in 1990 and 1991.

Stream	Date	Flow
Malheur River at Dollar Basin	8/13/90	20.4 CFS
Malheur River below Logan Valley	9/17/90	13.5 CFS
Malheur River at Malheur Ford	7/31/91	29.8 CFS
Big Creek above Snowshoe Creek	8/06/90	7.8 CFS
Snowshoe Creek	8/06/90	0.4 CFS

Water temperatures in the Malheur are dominated by cold water tributaries flowing into a mostly unshaded, north south flowing stream with a dark rock substrate. Consequently, stream temperatures in much of the river are significantly higher than in the tributaries. Summer temperatures in the tributary streams range from approximately 45 to 60 degrees depending on the amount of shade and how high the headwaters are. Temperatures in the river move into the upper 60's in hot weather.

FIRE HISTORY

In 1959, approximately 1800 acres burned in the headwaters of Bosenburg Creek. The area was reforested, but was largely burned again in 1990 when the Corral Basin and Snowshoe Fires burned approximately 8400 acres in the headwaters of Snowshoe, Corral Basin, and Bosenburg Creeks. Shortly after each of these fires, large runoff events occured in the affected streams. As a result, large amounts of ash were transported into the streams, causing temporary increases in

turbidity and Ph. These effects are expected to be short lived. While additional events are expected to occur, recurrent ash flushes are not anticipated as post fire erosion and sediment control measures become effective. Longer lasting effects of these fires include altered timing and amount of available flows due to altered snowpack accumulation and melting rates, and increased stream temperatures as a result of the loss of shading vegetation.

Reduction in shade along these streams were assessed and temperature increases were estimated during fire recovery analysis. The results are displayed in the following table.

Snowshoe Creek	1.0 Degrees F.
Corral Basin Creek	2.1 Degrees F.
048 Creek	1.4 Degrees F.
050 Creek	3.6 Degrees F.
Bosenberg Creek	1.4 Degrees F.
Big Creek	0.8 Degrees F.
Malheur River	0.6 Degrees F.

Resprouting and growth of riparian vegetation is expected to replace the lost shade and reduce stream temperatures to pre-fire levels in approximately 10 years.

MANAGEMENT ACTIVITIES

With the exception of the high elevation, headwater reaches of Big Creek, Meadow Fork, Lake Creek, and McCoy Creek, as well as the inner canyons of the Malheur and it's tributaries below the confluence of Summit Creek, timber harvest and road building activities within the Malheur drainage have occurred at relatively high levels. Recent management activities are especially concentrated in the areas burned during the Snowshoe Fire. However, management activities associated with fire recovery are well mitigated to maintain water quality and watershed stability.

Many of the tributaries in the lower part of the wild and scenic segments have been heavily managed for timber in their gentle headwater reaches. These reaches are predominantly intermittant and do not contribute to increased summer temperatures in lower perennial reaches. Some erosion and sedimentation has occurred, primarily as a result of poor road location and skidding patterns, but long, steep, sediment deficient reaches below these intermittant draws are capturing and utilizing the transported material before it reaches the river.

Grazing in the Malheur basin is concentrated in the same areas where timber management activities have occurred. These are the areas that are most accessible to livestock, and timber harvest has in many cases increased the abundance of forage. Where livestock have access, use of some of the riparian areas is extensive. In the high elevation headwater reaches in the wilderness and in the steep inner canyons along the river, livestock use is minimal due to rugged terrain and dense riparian vegetation. Actual use of riparian areas along the river, is concentrated in the gentler, wider reaches above Tureman Creek, although local heavy use can occur when livestock trails along the river.

While there are no known water diversions along the wild and scenic segments of the Malheur, there are numerous permitted diversions above these reaches in Logan Valley. These diversions belong primarily to the private property owners in Logan Valley.

David G. Kretzing
Hyrdologist

Wild and Scenic Malheur River
General Botanical Overview
by
Katherine J. Ramsey, Wildlife Biologist
Edward Davis, NTE Botanist
Margaret Willits, NTE Botanist

The presence of individual plant species and the composition of plant communities along the Malheur River are influenced by various combinations of physical and biological factors. Some of the most influential physical factors include general and local climate; soil depths, textures, and underlying geology; and fire history. Biological factors include characteristic species modes of reproduction, a species' ability to spread into suitable areas, responses to fire and drought, competition with other plants for water and nutrients, soil disturbance and use by animals.

This survey was conducted between early June and early July of 1991. The flowering season this year was unusually delayed by roughly 4 weeks due to unseasonably cool rainy weather throughout the month of June. Thus the plant species mentioned in the following discussion and in the appendix species list represent River flora observable from mid-late spring into very early summer. Later-blooming species typical of mid-June into August may or may not have been identified due to the timing of the survey.

The north half of the River (roughly 6 miles), from Logan Valley south to Malheur Ford, is designated as the Scenic section of the River. Generally, long sideslopes characterize this section, grading slowly down to the river. Numerous sand- and gravelbar "islands" also distinguish this stretch from the lower Wild section of the River. Islands indicate that although erosion is a factor, stream gradients are gentle enough to allow subsequent deposition and establishment of vegetation. Observable boundaries between plant communities are gradual in this homogeneous environment (relative to the Wild section).

The south half of the River (roughly 6 miles), from Malheur Ford south to the Forest boundary, is designated as the Wild section of the River. Steep slopes create a deep canyon through which the Wild River travels. These slopes are broken by cliffs and rockslides, and the boundaries between plant communities are often abrupt and distinct.

The survey identified five general habitats within the River Corridor: 1) Forest, 2) Scab and sagebrush flats, 3) Riverbanks and islands, 4) Upland riparian, 5) Rockslides. From the river upslope, the general distribution pattern of these zones was riverbank and island vegetation grading into forest or upland riparian plant communities grading into dry shrub (scab and sagebrush) areas at or near the rim of the canyon. This pattern was frequently disrupted by rockslides in the canyon. Rockslides and mass wasting have created midslope benches, principally in the Wild section, which have become vegetated with sagebrush/bunchgrass communities.

1) Forested sites intermingle with non-forest sites throughout the River corridor. The cooler, moister lower slopes support both open stands of large, yellow-barked old-growth Ponderosa pine and stands of mixed conifers dominated by Douglas fir. Ponderosa pine of varying ages dominate the harsher

environment of the upper slopes, with minor amounts of Douglas fir and white fir scattered among the pine. Western larch is observable along the river banks and close to the rim below Miller Flat. Curl-leaf mountain mahogany grows in small isolated patches on the upper slopes, while western juniper are found scattered throughout sparsely timbered areas.

Typical understory species in the pine and mixed conifer timber include: elk sedge, pinegrass, Oregon-grape, wild rose, arnica, wild strawberry, Douglas' brodiaea, and pale agoseris.

2) Scabs and sagebrush flats are dominated by various species of sagebrush and bunchgrasses, and plant community composition generally depends upon soil depth and available moisture for plant growth. On the shallowest, rockiest soils, rigid sagebrush dominates. As the soil becomes slightly deeper, dominance shifts to low sagebrush. The rigid and low sagebrush sites are collectively referred to as scabs. Mountain big sagebrush and bitterbrush grow on the deepest soils or where bedrock is cracked such that roots have access to deeper watertables. Bunchgrasses on these sites include Sandberg's bluegrass, bluebunch wheatgrass and squirreltail.

Other species typically associated with these sites include western juniper, various onions, dwarf monkey-flower, skyrocket gilia, larkspur, smallflower fringecup, narrowleaf scullcap, arrowleaf balsamroot and phacelia. The trail from Hog Flat to the river passes through an open slope with a rich, colorful variety of flowers. This slope burned in a 15 acre stand replacing hot fire in August of 1968.

3 and 4) Species present in these two types of riparian areas were very similar, with a few exceptions, and the flora of the upland sites was somewhat less diverse, presumeably due to less available water. Black cottonwood and common cowparsnip grow around the upland springs and seeps, but are not present along the river banks.

Mountain alders, bog birch, red-osier dogwoods, horsetails, wild geraniums, cinquefoil, buttercups, veronica, and bedstraws grew only along the river. A caespitose lupine, similar in appearance to a lupine on the 1991 R-6 sensitive species list, was also found growing on the riverbanks (T17S, R33 1/2 S, sec.2 n1/2, west side of the river). Morphology and habitat are such that the lupine encountered on the river is unlikely to be the sensitive species, based on a recent (1990) report by Steven Broich, a botanist who rigorously worked in 1990 with the group of caespitose lupines found in eastern Oregon.

Plant communities on the islands are relatively simple compared to either the riverbanks or the upland riparian areas, due to seasonally fluctuating water levels, and high levels of disturbance during spring flooding. Typically the only plants growing on the islands are sedges, rushes, clover and veronica. Elephant's head grows only on the islands, with the exception of one site where a former island has become part of the riverbank.

5) Rockslide areas were generally one of three types; talus slopes (flat platy rock) supported the least amount of vegetation due to lack of soil and an unstable substrate. Rockfalls of small blocky rubble have captured more soil than the third type (large boulders), and they sustain the most plant life. The Scenic section possessed only infrequent talus slopes, whereas the Wild

section contained all three types of habitat. Talus provided habitat only for penstemons, phacelia, bushy mentzelia, and bedstraws. Large jumbled rock areas additionally supported small patches of bunchgrasses and sedges, along with deep-rooted bitter cherry and currents. Small-sized rubble sustained more extensive patches of bunchgrasses and sedges, along with western juniper, curl-leaf mountain mahogany, and buckwheats.

The following sites, all upland riparian areas, were particularly worth of more detailed descriptions:

a) A mid-slope bench on the east side of the river (T17S, R34E, Sec 20, SW/NE/SW 1/4) contains a large (~5 acre) ephemeral pond which is visible in aerial photos taken in July 1990. At the time of survey (6/26/91), the area was boggy rather than a true pond due to extended drought over the past two years. At the time, few of the riparian or aquatic species on the site were flowering and were difficult to identify. The site showed evidence of recent grazing by cattle.

b) A series of springs begins mid-slope on the west side of the river between Tureman Creek and Diamond Dot Gulch (T17S, R33 1/2 E, Sec. 12, SW 1/2 SW 1/4). The springs flow down a gentle rocky slope with extremely shallow soils before dropping over rock ledges toward the river in a series of small waterfalls. At the base of these falls, the gradient slows before reaching the river. The combination of shallow rooting depths, abundant water and an open northeast exposure provides habitat for a lush variety of forbs and grasses including a profusion of Jacob's ladder and bog-candle. The distinctively tall swamp onion and the elegant death-camas were only observed in this area. This is a fragile area, which would be easily damaged by more than minimal foot-traffic.

c) A bench, (T17S, R34E, Sec 33) WNW of the section center, just south of a knob (elev 5210), supports a silver sagebrush/grassland community, the only such area discovered along the river. Silver sagebrush grows on moister soils than does the big sagebrush group.

d) A hot wildfire burned on both sides of the wild section of the river (T18S, R34E, Sec. 3 and 4) in summer 1989, providing an opportunity to observe natural fire-related early revegetation and subsequent successional changes over time. Within the south end of the burned area, there are several springs. The removal of competing woody species by the fire has created a temporary situation where more water and nutrients and sunlight are available to support golden corydalis, bog-candle and other riparian forbs than previously. The plant community on this site may change dramatically over time as trees and shrubs re-establish and become dominant once more.

Plant Species List
for
Malheur & Scenic River

Scenic Section

Scenic Section

	CODE	SCIENTIFIC NAME	COMMON NAME	LIFE FORM
1	ABCO	Abies concolor	White fir	T
2	ABGR	Abies grandis	Grand fir	T
3	JUOC	Juniperus occidentalis	Western juniper	T
4	LAOC	Larix occidentalis	Western larch	T
5	PICO	Pinus contorta	Lodgepole pine	T
6	PIPO	Pinus ponderosa	Ponderosa pine	T
7	PIPO	Populus tremuloides	Quaking aspen	T
8	PSME	Pseudotsuga menziesii	Douglas fir	T
9	AMAL	Amelanchier alnifolia	Saskatoon serviceberry	S
10	ARARA	Artemisia arbuscula var. arbuscula	Low sagebrush	S
11	ARTRV	Artemisia tridentata ssp. vaseyana	Mountain big sagebrush	S
12	BERE	Berberis repens	Oregon grape	S
13	CHNA	Chrysothamnus nauseosus	Rubber rabbitbrush	S
14	CHVI	Chrysothamnus viscidiflorus	Green rabbitbrush	S
15	PRVI	Prunus virginiana	Chokecherry	S
16	PUTR	Purshia tridentata	Antelope bitterbrush	S
17	RICE	Ribes cereum	Golden current	S
18	RILA	Ribes lacustre	Prickly current	S
19	RIVI	Ribes viscosissimum	Sticky current	S
20	ROGY	Rosa gymnocarpa	Little wild rose	S
21	RUBUS	Rubus sp.	Bramble	S
22	SACE	Sambucus cerulea	Blue elderberry	S
23	SYAL	Symphoricarpos albus	Common snowberry	S
24	AGGL	Agoseris glauca	Pale agoseris	F
25	ALAC	Allium acuminatum	Tapertip onion	F
26	ALVA	Allium validum	Swamp onion	F
27	ANMA	Anaphalis margaritacea	Pearly-everlasting	F
28	ANLU	Antennaria luzuloides	Woodrush pussytoes	F
29	ANRO	Antennaria rosea	Rosy pussytoes	F
30	APAN	Apocynum androsaefolium	Spreading dogbane	F
31	AQFO	Aquilegia formosa	Red columbine	F
32	ARABI	Arabis sp.	Rockcress	F
33	ARCEU	Arceuthobium sp.	Dwarf mistletoe	F
34	ARCO2	Arenaria congesta	Heartleaf arnica	F
35	ARMA3	Arenaria macrophylla	Bigleaf sandwort	F
36	ARCO	Arnica cordifolia	Heartleaf arnica	F
37	ARSO	Arnica sororia	Arnica	F
38	ARLU	Artemisia ludoviciana	Prairie sagewort	F
39	BAOR	Barbarea orthoceras	American watercress	F
40	BRDO	Brodiaea douglasii	Douglas' brodiaea	F
41	BRHY	Brodiaea hyacinthina	Hyacinth brodiaea	F
42	CAOLO	Cardamine oligosperma	Few-seeded bittercress	F
43	CAPE4	Cardamine pensylvania	Pennsylvania bittercress	F
44	CACH2	Castilleja chromosa	Desert paintbrush	F
45	CALI2	Castilleja linariaefolia	Narrow-leaved paintbrush	F
46	CAMI2	Castilleja miniata	Scarlet paintbrush	F
47	CARU2	Castilleja rustica	Rustic paintbrush	F
48	CENU	Cerastium nutans	Nodding chickweed	F
49	CICA2	Cirsium canovirens	Gray-green thistle	F
50	CIRCI	Circium sp.	Thistle	F
51	CISC	Circium scariosum	Elk thistle	F

	CODE	SCIENTIFIC NAME	COMMON NAME	LIFE FORM
52	COLI2	Collomia linearis	Narrow-leaf collomia	F
53	COPA	Collinsia parviflora	Small-flowered blue-eyed-mary	F
54	CREPI	Crepis sp.	Hawksbeard	F
55	CRYPT	Cryptantha sp.	Cryptantha	F
56	CYFR	Cystopteris fragilis	Brittle bladder-fern	F
57	DENU3	Delphinium nuttallianum	Upland larkspur	F
58	DERIV	Descurainia richardsonii	Tansy mustard	F
59	EPAN	Epilobium angustifolium	Fireweed	F
60	EQAR	Equisetum arvense	Field horsetail	F
61	EQLA	Equisetum laevigatum	Horsetail	F
62	EQPA	Equisetum palustre	Marsh horsetail	F
63	ERDO	Eriogonum douglasii	Douglas' buckwheat	F
64	ERLA	Eriophyllum lanatum	Wooly sunflower	F
65	FRVE	Fragaria vesca	Woods strawberry	F
66	FRVI	Fragaria virginiana	Blue strawberry	F
67	FRAL2	Frasera albicaulis	White-stemmed frasera	F
68	GABI	Galium bifolium	Thinleaf bedstraw	F
69	GATR	Galium trifolium	Sweet-scented bedstraw	F
70	GARA	Gayophytum ramosissimum	Hairstem groundsmoke	F
71	GAIG	Gilia aggregata	Scarlet gilia	F
72	HADI2	Habenaria dilatata	Bog-candle	F
73	HELA	Heracleum lanatum	Cow parsnip	F
74	HECY	Heuchera cylindrica	Alumroot	F
75	HYAN	Hypericum anagalloides	Bog St. John's-wort	F
76	HYCA	Hydrophyllum capitatum	Ballhead waterleaf	F
77	LERE	Lewisia rediviva	Bitterroot lewisia	F
78	LIPE	Linum perenne	Perennial flax	F
79	LIPA	Lithophragma parviflora	Smallflower fringecup	F
80	LIRU	Lithospermum ruderale	Wayside gromwell	F
81	LOTR	Lomatium triternatum	Nine-leaf lomatium	F
82	LUCA	Lupinus caudatus	Tailcup lupine	F
83	LULE2	Lupinus lepidus	Prairie lupine	F
84	MEDI	Mentzelia dispersa	Bushy mentzelia	F
85	MIGR	Microsteris gracilis	Microsteris	F
86	MIGU	Mimulus guttatus	Yellow monkey-flower	F
87	MOCH	Montia chamissoi	Water montia	F
88	MOLI	Montia linearis	Narrow-leaved montia	F
89	MOPE	Montia perfoliata	Miner's lettuce	F
90	OESU	Oenothera subacaulis	Long-leaf evening primrose	F
91	ORUN	Orobanche uniflora	Broomrape	F
92	ORHI	Orthocarpus hispidus	Hairy owl-clover	F
93	PABR	Paeonia brownii	Brown's peony	F
94	PEGR	Pedicularis groenlandica	Elephant's head	F
95	PEDA	Penstemon davidsonii	Davidson's penstemon	F
96	PEDE	Penstemon deustus	Hot-rock penstemon	F
97	PEPR	Penstemon procerus	Small-flowered penstemon	F
98	PESP	Penstemon speciosus	Showey penstemon	F
99	PHHA	Phacelia hastata	Silverleaf phacelia	F
100	PHCH	Phoenicaulis cheiranthoides	Daggerpod	F
101	POOC	Polemonium occidentale	Western Jacob's ladder	F
102	POAR	Potentilla arguta	Tall cinquefoil	F
103	POGR	Potentilla gracilis	Cinquefoil	F
104	RAAQ	Ranunculus aquatilis	Water crowfoot buttercup	F
105	RARE	Ranunculus repens	Creeping buttercup	F
106	RASU2	Ranunculus occidentalis	Western buttercup	F

	CODE	SCIENTIFIC NAME	COMMON NAME	LIFE FORM
107	RASU2	Ranunculus subrigidus	Stiff-leaved water-buttercup	F
108	RUSA	Rumex salicifolius	Willow dock	F
109	SAOR	Saxifraga oregana	Bog saxifrage	F
110	SCAN	Scutellaria angustifolia	Narrowleaf scullcap	F
111	SEIN	Senecio integerrimus	Western groundsel	F
112	SENEC	Senecio sp.	Groundsel	F
113	SIOR	Sidalcea oregana	Oregon checker-mallow	F
114	SIDAL	Sidalcea sp.	Checker-mallow	F
115	SIME	Silene menziesii	Menzie's silene	F
116	SISC	Silene scouleri	Scouler silene	F
117	SMST	Smilacina stellata	Starry false Solomon's-seal	F
118	TAOF	Taraxacum officinale	Dandelion	F
119	TRDU	Tragopogon dubius	Salsify	F
120	TRHY	Trifolium hybridum	Alsike clover	F
121	TRMI	Trifolium microcephalum	Small-headed clover	F
122	VETH	Verbascum thapsus	Mullein	F
123	VEAM	Veronica americana	American speedwell	F
124	VIAD	Viola adunca	Early blue violet	F
125	VIPU	Viola purpurea	Goosefoot violet	F
126	ZIEL	Zigadenus elegans	Mountain death-camas	F
127	AGSP	Agropyron spicatum	Bluebunch wheatgrass	F
128	BRTE	Bromus tectorum	Cheatgrass	G
129	CAAQ	Carex aquatilis	Water sedge	G
130	CAHO	Carex hoodii	Hood's sedge	G
131	CANE	Carex nebraskensis	Nebraska sedge	G
132	CAREX	Carex sp.	Sedge	G
133	CASI2	Carex simulata	Short-beaked sedge	G
134	CASI3	Carex sitchensis	Sitka sedge	G
135	DAUN	Danthonia unispicata	One-spike oatgrass	G
136	ELCI	Elymus cinereus	Great Basin giant wildrye	G
137	JUBA	Juncus balticus	Baltic rush	G
138	JUNCU	Juncus sp.	Rush	G
139	LUCA2	Luzula campestris	Field woodrush	G
140	ORWE	Oryzopsis webberi	Webber's ricegrass	G
141	POPR	Poa pratensis	Kentucky bluegrass	G
142	POSA	Poa sandbergii	Sandberg's bluegrass	G
143	SIHY	Sitanion hystrix	Squirreltail	G
144	STOC	Stipa occidentalis	Western needlegrass	G

Key: T - Tree
S - Shrub
F - Forb
G - Grass or Grass-like

Plant Species List
for
Malheur Wild & Scenic River

Wild Section

Wild Section

	CODE	SCIENTIFIC NAME	COMMON NAME	LIFE FORM
1	ABCO	Abies concolor	White fir	T
2	ABGR	Abies grandis	Grand fir	T
3	JUOC	Juniperus occidentalis	Western juniper	T
4	LAOC	Larix occidentalis	Western larch	T
5	PICO	Pinus contorta	Lodgepole pine	T
6	PIPO	Pinus ponderosa	Ponderosa pine	T
7	POTR	Populus tremuloides	Quaking aspen	T
8	POTR2	Populus trichocarpa	Black cottonwood	T
9	PSME	Pseudotsuga menziesii	Douglas fir	T
10	ALIN	Alnus incana	Mountain alder	S
11	AMAL	Amelanchier alnifolia	Saskatoon serviceberry	S
12	ARARA	Artemisia arbuscula var.arbuscula	Low sagebrush	S
13	ARCA	Artemisia cana	Silver sagebrush	S
14	ARRI	Artemisia rigida	Rigid sagebrush	S
15	BERE	Berberis repens	Oregon grape	S
16	BEGL	Betula glandulosa	Bog birch	S
17	CEVE	Ceanothus velutinus	Snowbrush	S
18	CELE	Cercocarpus ledifolius	Curl-leaf mountain mahogany	S
19	CHNA	Chrysothamnus nauseosus	Rubber rabbitbrush	S
20	COST	Cornus stolonifera	Red-osier dogwood	S
21	PHLE2	Philadelphus lewisii	Mockorange	S
22	PREM	Prunus emarginata	Bittercherry	S
23	PUTR	Purshia tridentata	Antelope bitterbrush	S
24	RICE	Ribes cereum	Golden current	S
25	RILA	Ribes lacustre	Prickly current	S
26	ROGY	Rosa gymnocarpa	Little wild rose	S
27	RONU	Rosa nutkana	Bristly Nootka rose	S
28	RUBUS	Rubus sp.	Bramble	S
29	SACE	Sambucus cerulea	Blue Elderberry	S
30	SALIX	Salix spp.	Willow	S
31	SHCA	Shepherdia canadensis	Russett buffalo-berry	S
32	SPBE	Spiraea betulifolia	Shinyleaf spiraea	S
33	SYAL	Symphoricarpos albus	Common snowberry	S
34	ACMI	Achillea millefolium	Yarrow	F
35	ACRU	Actaea rubra	Baneberry	F
36	AGUR	Agastache urticifolia	Nettle-leaf horse-mint	F
37	AGGL	Agoseris glauca	Pale agoseris	F
38	ALAC	Allium acuminatum	Tapertip onion	F
39	AMRE2	Amsinckia retrorsa	Rigid fiddleneck	F
40	ANMA	Anaphalis margaritacea	Pearly-everlasting	F
41	ANRO	Antennaria rosea	Rosy pussytoes	F
42	AQFO	Aquilegia formosa	Red columbine	F
43	APAN	Apocynum androsaemifolium	Spreading dogbane	F
44	ARAB1	Arabis spp.	Rockcress	F
45	ARHI	Arabis hirsuta	Hairy rockcress	F
46	ARCO2	Arenaria congesta	Ballhead sandwort	F
47	ARCO	Arnica cordifolia	Heartleaf arnica	F
48	ARLU	Artemisia ludoviciana	Prairie sagewort	F
49	ASTER	Aster spp.	Aster	F
50	BASA	Balsamorhiza sagittata	Arrowleaf balsamroot	F
51	BRDO	Brodiaea douglasii	Douglas' brodiaea	F

	CODE	SCIENTIFIC NAME	COMMON NAME	LIFE FORM
52	CAEU	Calochortus eurycarpus	Wide-fruit mariposa-lily	F
53	CAQU	Camassia quamash	Common camas	F
54	CACH2	Castilleja chromosa	Desert paintbrush	F
55	CALIZ	Castilleja linariaefolia	Narrow-leaved paintbrush	F
56	CAMI2	Castilleja miniata	Scarlet paintbrush	F
57	CENU	Cerastium nutans	Nodding chickweed	F
58	CHUM	Chimaphila umbellata	Princess-pine	F
59	CHLE2	Chrysanthemum leucanthemum	Ox-eye daisy	F
60	CICA2	Circium canovirens	Gray-green thistle	F
61	CIRC1	Circium sp.	Thistle	F
62	COGR	Collinsia grandiflora	Large-flowered blue-eyed-mary	F
63	COPA	Collinsia parviflora	Small-flowered blue-eyed-mary	F
64	COLI2	Collomia linearis	Narrow-leaf collomia	F
65	COST2	Corallorhiza striata	Striped coral-root	F
66	COTR	Corallorhiza trifida	Yellow coral-root	F
67	COAU	Corydalis aurea	Golden corydalis	F
68	CREPI	Crepis sp.	Hawksbeard	F
69	CYFR	Cystopteris fragilis	Brittle bladder-fern	F
70	DENU3	Delphinium nuttallianum	Upland larkspur	F
71	DODEC	Dodecatheon spp.	Shooting star	F
72	EPAN	Epilobium angustifolium	Fireweed	F
73	EPMI	Epilobium minutum	Small-flowered willow-herb	F
74	EQHY	Equisetum hyemale	Common scouring-rush	F
75	EQLA	Equisetum laevigatum	Horsetail	F
76	EQPA	Equisetum palustre	Marsh horsetail	F
77	ERFI	Erigeron filifolius	Threadleaf fleabane	F
78	ERDO	Eriogonum douglasii	Douglas' buckwheat	F
79	ERLA	Eriophyllum lanatum	Wooly sunflower	F
80	FRVE	Fragaria vesca	Woods strawberry	F
81	FRVI	Fragaria virginiana	Blueleaf strawberry	F
82	FRAL2	Frasera albicaulis	White-stemmed frasera	F
83	FRAT	Fritillaria atropurpurea	Chocolate lily	F
84	GAAP	Galium aparine	Goosegrass	F
85	GABO	Galium boreale	Northern bedstraw	F
86	GALIU	Galium sp.	Bedstraw	F
87	GARA	Gayophytum ramosissimum	Hairstem groundsmoke	F
88	GETR	Geum triflorum	Prairie smoke	F
89	GIAG	Gilia aggregata	Scarlet gilia	F
90	HADI2	Habenaria dilatata	Bog-candle	F
91	HACKE	Hackelia sp.	Wild Forget-me-not	F
92	HEAN	Helianthus annuus	Common sunflower	F
93	HELA	Heracleum lanatum	Cow parsnip	F
94	HECY	Heuchera cylindrica	Alumroot	F
95	HYCA	Hydrophyllum capitatum	Ballhead waterleaf	F
96	HYFE	Hydrophyllum fendleri	Fendler's waterleaf	F
97	IRMI	Iris missouriensis	Western blue flag	F
98	LIPA	Lithophragma parviflora	Smallflower fringecup	F
99	LIRU	Lithospermum ruderale	Wayside gromwell	F
100	LOTR	Lomatium triternatum	Nine-leaf lomatium	F
101	LUCA	Lupinus caudatus	Tailcup lupine	F
102	MEDI	Mentzelia dispersa	Bushy mentzelia	F
103	MIGR	Microsteris gracilis	Microsteris	F
104	MIGU	Mimulus guttatus	Yellow monkey-flower	F
105	MINA	Mimulus nanus	Dwarf purple monkey-flower	F
106	MILE	Mimulus lewisii	Great purple monkey-flower	F

	CODE	SCIENTIFIC NAME	COMMON NAME	LIFE FORM
107	MOCH	Montia chamissoi	Water montia	F
108	MOLI	Montia linearis	Narrow-leaved montia	F
109	NEPE	Nemophila pedunculata	Meadow nemophila	F
110	ORHI	Orthocarpus hispidus	Hairy owl-clover	F
111	OSOC	Osmorhiza occidentalis	Blunt-fruit sweet-cicely	F
112	PEFR	Penstemon fruticosus	Shrubby penstemon	F
113	PEPR	Penstemon procerus	Small-flowered penstemon	F
114	PHHA	Phacelia hastata	Silverleaf phacelia	F
115	PHHE	Phacelia heterophylla	Varileaf phacelia	F
116	PHLI	Phacelia linearis	Threadleaf phacelia	F
117	PHCA2	Phlox caespitosa	Tufted phlox	F
118	POOC	Polemonium occidentale	Western Jacob's ladder	F
119	POBI	Polygonum bistortoides	American bistort	F
120	POAR	Potentilla arguta	Tall cinquefoil	F
121	SAOR	Saxifraga oregana	Bog saxifrage	F
122	SEIN	Senecio integerrimus	Western groundsel	F
123	SIOR	Sidalcea oregana	Oregon checker-mallow	F
124	SMRA	Smilacina racemosa	Western false Solomon's-seal	F
125	SMST	Smilacina stellata	Starry false Solomon's-seal	F
126	TAOF	Taraxacum officinale	Dandelion	F
127	THFE2	Thalictrum fendleri	Fendler's meadowrue	F
128	THVE	Thalictrum venulosum	Veiny meadowrue	F
129	THOC	Thalictrum occidentale	Western meadowrue	F
130	TRIFO	Trifolium sp.	Clover	F
131	TRMA	Trifolium macrocephalum	Bighead clover	F
132	TRHY	Trifolium hybridum	Alsike clover	F
133	VETH	Verbascum thapsus	Mullein	F
134	VEAN	Veronica anagallis-aquatica	Water speedwell	F
135	VEPE	Veronica peregrina	Purslane speedwell	F
136	VIAD	Viola adunca	Early blue violet	F
137	VIPU	Viola purpurea	Goosefoot violet	F
138	WYAM	Wyethia amplexicaulis	Mule's ear wyethia	F
139	AGSP	Agropyron spicatum	Bluebunch wheatgrass	G
140	BRTE	Bromus tectorum	Cheatgrass	G
141	CARU	Calamagrostis rubescens	Pinegrass	G
142	CAGE	Carex geyeri	Elk sedge	G
143	CAREX	Carex sp.	Sedge	G
144	CASI2	Carex simulata	Short-beaked sedge	G
145	ELCI	Elymus cinereus	Great Basin giant wildrye	G
146	FEID	Festuca idahoensis	Idaho fescue	G
147	LUZUL	Luzula sp.	Woodrush	G
148	POSA	Poa sandbergii	Sandberg's bluegrass	G
149	POTR3	Poa trivialis	Rough-stalk bluegrass	G
150	SIHY	Sitanion hystrix	Squirreltail	G
151	STOC	Stipa occidentalis	Western needlegrass	G

Key: T = Tree
S = Shrub
F = Forb
G = Grass or Grass-like

Appendix E

ENVIRONMENTAL ASSESSMENT

United States
Department of
Agriculture

FOREST SERVICE

August 1, 1992

ENVIRONMENTAL ASSESSMENT

MALHEUR WILD AND SCENIC RIVER

MALHEUR NATIONAL FOREST

John Day, Oregon

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Chapter One

Purpose and Need

Introduction

The Omnibus Oregon Wild and Scenic Rivers Act of 1988 added a portion of the Malheur River to the National Wild and Scenic Rivers System. The designated section runs from the southern end of Logan Valley near Bosonberg Creek to the Malheur National Forest Boundary.

Legislation requires the USDA Forest Service to develop a management plan for the river within 3 years. This Environmental Assessment (EA) is being prepared in compliance with the National Environmental Policy Act of 1969 and the Council on Environmental Quality regulations (40 CFR 1500-1508).

The objective of this EA, its purpose and need, is to provide the decision maker with sufficient information to select an appropriate management strategy for the Malheur Wild and Scenic River. It will be incorporated into a river management plan. To comply with the Wild and Scenic Rivers Act, this plan must provide long-term protection and enhancement of the attributes which led to designation.

Preparation of the EA also enabled interested members of the public to participate in wild and scenic river planning.

The Malheur Wild and Scenic River Management Plan will direct activities in the designated river corridor and be incorporated by amendment into the Malheur National Forest Land and Resource Management Plan (1990).

For rivers included in the National Wild and Scenic Rivers System, the Act decrees that these rivers shall be preserved in free-flowing condition and the rivers and their immediate environments shall also be protected for the benefit and enjoyment of present and future generations.

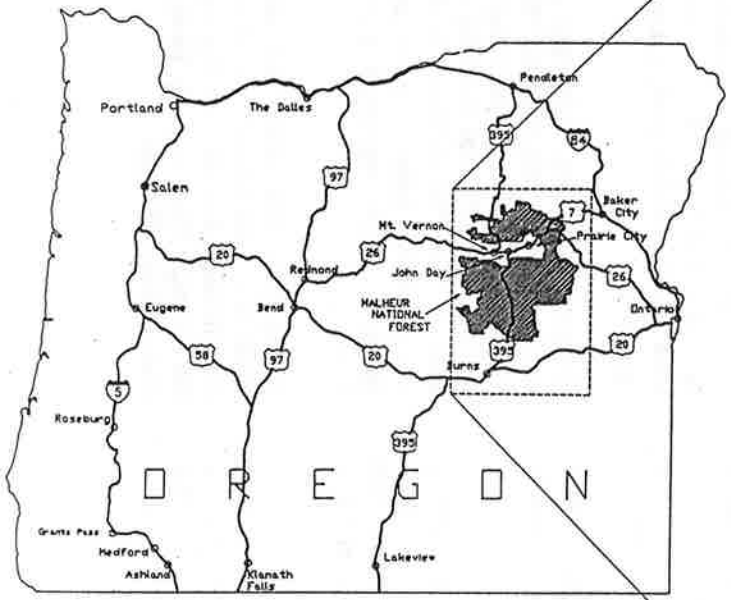
To be designated, a river must possess "outstandingly remarkable" qualities. Congress cited outstanding scenic values when including the Malheur River in the national system. A resource assessment completed in 1990 identified geology in the wild segment of the river as an outstandingly remarkable value and confirmed scenery. As part of this management plan planning process, a second resource assessment, with more resource information available, was conducted. It identified scenic, geologic, historic, and wildlife habitat values as outstandingly remarkable for the river corridor.

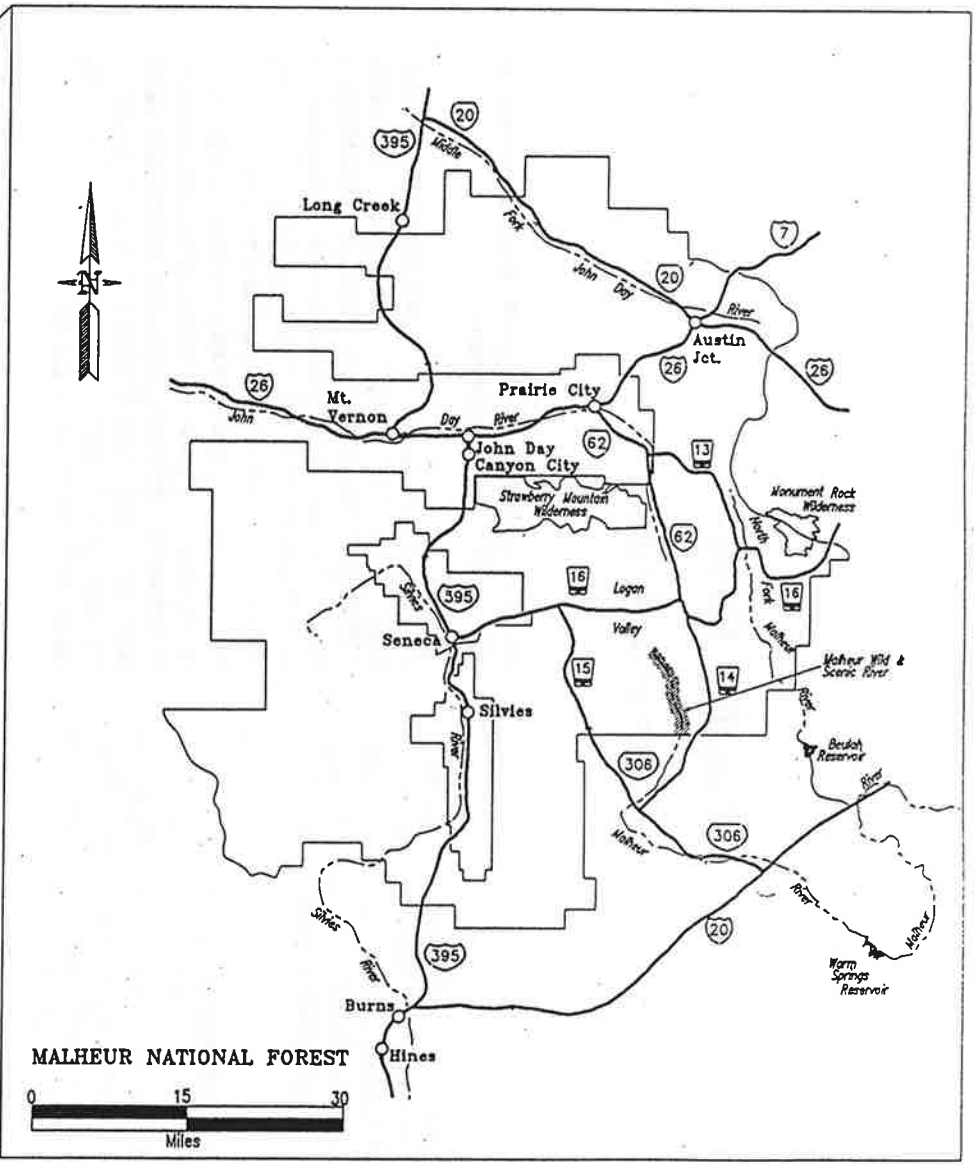
Rivers are classified according to the degree to which they have been altered by humans. The categories are Wild, Scenic, and Recreation Rivers. Scenic Rivers, the classification of the 6-mile northern portion of the Malheur River (above Malheur Ford), are thus defined: Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

The 6-mile southern segment of the designated river (downstream from Malheur Ford) is classified as a Wild river, which is defined as: Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

The Malheur River flows southerly from headwater streams in the Strawberry Mountain Wilderness Area through the Malheur National Forest. Beyond the Forest, it flows easterly, joining the Snake River near Ontario, Oregon.

VICINITY MAP





River Corridor Boundary

The Act established the river termini, from the mouth of Bosonberg Creek to the Forest boundary, for this river. It has been recognized that for some designated rivers, in a few special situations, some termini need minor adjustments. Since the termini were established as part of the Act, recommended changes require a minor amendment to the Act.

The mouth of Bosonberg Creek is about 200 yards north of the Forest boundary line and is on private land. The southern terminus was defined as the southern boundary of the Forest. The Act provided an interim river corridor boundary 1/4 mile on either side of the river. This interim corridor boundary included about 27 acres of private land below the confluence of Bosonberg Creek and 40 acres of private land outside the Forest boundary to the south.

In 1990, the Regional Forester established river corridor boundaries through a process which involved members of the public and several groups with interests in the area. A resource assessment was completed as part of the boundary planning process. The objective for establishing boundaries was to protect the Congressionally recognized scenic value and the geological value, which was identified as an outstandingly remarkable value in the 1990 resource assessment.

This boundary describes the northern terminus of the river to be the Forest Service/private land line between Section 35 T. 16 S. R. 33 1/2 E. and Section 2, T. 17 S., R. 33 1/2 E. W.M. below Logan Valley. The southern terminus is the point where the river exits the Forest between Sections 15 and 16, T. 18 S., R. 34 E.

The issue involving inclusion of private land was resolved by placing the northern terminus on the Forest boundary and by not including any land outside the southern Forest boundary. The Forest Service has sent the legal description and map of the new boundary to Congress for approval.

The boundary established by the Regional Forester in 1990 identifies 3,758 acres in the river corridor, 797 within the scenic segment and 2,961 within the wild segment. There are 12 miles of designated river with an average of 312.6 acres per river mile. The total acreage meets the maximum allowed in the Act, which sets a limit of 320 acres per river mile.

Approximately 2,703 acres of the corridor are in Grant County and 1,055 in Harney County.

There was an opportunity to consider changes to the boundary during the resource assessment stage of this planning effort. After the resource assessment was completed, the interdisciplinary team reviewed the boundary established in 1990 to determine if the outstandingly remarkable values were indeed protected. The interdisciplinary team found that the boundary was adequate for this purpose.

The corridor is located on National Forest lands in Sections 3, 4, 9, 10, 15 of T. 18 S., R. 34 E., Sections 7, 17, 18, 20, 28, 29, 32, and 33 of T. 17 S. R. 34 E., and Sections 2, 11, 12, and 13 of T. 17 S., R. 33 1/2 E. W.M.

Proposed Action

The proposed action is to develop a comprehensive river management plan for the Malheur River. Decisions which must be made include:

–Methods to protect and enhance outstandingly remarkable and significant river-related values.

–The determination of desired future conditions for all resources associated with the river corridor.

This EA provides the responsible official with information required to select the appropriate strategy for managing the Malheur Wild and Scenic River. It also provided the public with an opportunity to participate in the river planning process.

Short-term and long-term direct, indirect, and cumulative effects of past, present, and reasonably forseeable future actions of implementing five management alternatives are disclosed. The management plan will provide direction for the next 10 to 15 years, but the long-term (50 to 200 years) effects of the alternatives are also considered.

Stages in the EA process included:

*Scoping
*Resource Assessment
*Identification of Desired Future Condition
*Issue Development
*Data Collection
*Alternative Development
*Disclosure of Effects of Implementing Alternatives
*Modification, If Needed, to Reflect Decision of Responsible Official
*Development and Implementation of the Management Plan
*Monitoring Effects of Implementation

Management Plan

One of the alternatives in this EA, or a combination of elements from several alternatives, will be selected as the best strategy for managing the Malheur Wild and Scenic River. The selected strategy will serve as the basis for the Malheur Wild and Scenic River Management Plan.

Forest Plan

The Malheur National Forest Land and Resource Management Plan, used in conjunction with the Forest Service Manuals and Handbooks and the Pacific Northwest Regional Guide, will direct activities on the Malheur National Forest for the next 10 to 15 years. The Forest Plan contains the goals, objectives, and standards and guidelines for the 25 Management Areas on the Forest.

Each Management Area has different goals, resource potentials, and limitations. Overlap is inescapable and when a specific piece of land is included in several management areas, priority is assigned. The hierarchy is established primarily by: established authority (Congress or the Forest Supervisor), designated use, and Forest requirements.

Wild and Scenic Rivers, Management Area 22, is number two in the hierarchy and contains lands which could be considered riparian areas, old growth, recreation, rangeland, or visual corridor. Because of Congressional designation, all lands are to be managed within the standards and guidelines of Management Area 22.

The Malheur Wild and Scenic River Management Plan will constitute an amendment to the Malheur Forest Plan. The management plan will include a revision of the desired future condition identified for Management Area 22, Wild and Scenic Rivers.

River Values and Issues

In developing a desired future condition for the river corridor, two factors were central. First, planners evaluated the outstandingly remarkable qualities which led to designation of the Malheur Wild and Scenic River. Then a list of the other key issues was developed, a process which included extensive public involvement.

Outstandingly Remarkable Values

A thorough resource assessment in 1991 by the Malheur Wild and Scenic River Interdisciplinary Planning Team confirmed the judgment of Congress regarding the scenic values of the corridor. The resource assessment also resulted in the determination of geology, history, and wildlife habitat as outstandingly remarkable values.

Issues

In March 1991, 500 individuals and groups received a letter describing the river planning process and were asked for assistance in identifying key issues. Interested people and groups were invited to meet with the interdisciplinary river planning team leader.

Similar solicitations were made via the media, and meetings were held with the Grant County Court, the Grant County Stockgrowers' Board of Directors, the Burns Paiute Tribal Council, and the Grant County Conservationists. Open houses were held in John Day and Burns and there was a joint public meeting with the Bureau of Land Management in John Day. A field trip into the river corridor was conducted with members of the Burns Paiute Tribal Council and tribal members.

Approximately 75 issue responses were received. From these responses and the contributions of land managers from various agencies, the list of issues displayed below was developed.

Geology and Scenery

Scenery and Geology are outstandingly remarkable values. The river corridor generally appears natural, altered only slightly by human activities. Additional human activities -- timber harvest, grazing, and road or campground construction -- could affect scenic qualities and the character of the setting.

Natural processes like ecological succession, insect epidemics, or wildfires can also change the visual character of vegetation.

There may be opportunities to enhance views of geologic features, canyon walls, old stands of trees, and the river by removing or adding screening cover.

The crux of this issue is to determine how much and what kinds of modification of the landscape is desirable for long-term protection and enhancement of the visual resource.

Fisheries, Wildlife, and Botany

Wildlife habitat is an outstandingly remarkable value. Road construction, recreational developments, timber management, and prescribed fire could affect important habitat elements for featured and indicator wildlife species. This includes microhabitats, riparian zones, meadows, and big game winter range.

Rivers and their associated riparian areas commonly provide crucial biological connectivity corridors. Actions which would sever the effectiveness of these corridors may reduce the biodiversity of the ecosystem. Critical elements of habitat connectivity for featured and indicator species include immigration, emigration, genetic dispersal, foraging and hunting areas, migration routes, and nesting areas.

There may be existing and potential aquatic habitats within the river corridor for threatened or endangered species. Bull trout and redband trout, two species on the Regional Forester's Sensitive Species list, are known to inhabit the river and some tributary streams. Proposed actions may affect these habitats and the species dependent upon them.

Proposed actions, in particular timber harvest and road construction, may affect stands of old-growth timber which have been designated for protection and non-designated stands which meet Regional standards for old growth. These stands provide essential wildlife habitat for old-growth associated species and contribute to scenic quality and diversity.

Grazing by Livestock

The Wild and Scenic Rivers Act permits grazing in designated river corridors.

Current grazing utilization levels routinely exceed Forest Plan standards in some riparian areas within the corridor. Plant composition and vigor have been impaired to various degrees. Soil instability and compaction may be increasing with current grazing practices.

Indirect effects include sediment transported into the river and a reduction in potential for growing riparian vegetation.

The livestock industry and others have expressed concern about the possible curtailment of traditional grazing practices. Seasons of use and utilization levels on allotments adjacent to the river could be modified, existing range improvements could be removed, or grazing could be excluded.

There are existing water diversions and irrigation systems above the river corridor in the Malheur River watershed maintained by the Forest Service, range permittees, and private landowners to increase forage for livestock. They are described in the watershed issue discussion.

Conflicts between recreationists and cattle sometimes occur. Problems include vegetation trampled and eaten in campsites, dusty trails, and cow manure.

Timber Management

Timber may be harvested within scenic river corridors but managers must respect values which led to the special designation. The Act prohibits timber harvest within the wild portion of the river corridor.

Addressing the timber issue involves determining how much land within the scenic portion of the corridor should be declared suitable for timber manage-

ment. This could have some effect on the Forest's suitable timber base and local timber supply.

Forest Health

Years of fire suppression, livestock grazing, and selective timber harvest have altered the natural character of the forest vegetation. Timber harvest has been a smaller factor here than in many other areas of the Forest. The overstory is still largely intact, or has redeveloped over the last 70 years since harvest occurred in the early part of this century.

Climax species, such as white fir and Douglas fir, occupy some sites once dominated by ponderosa pine. These species, once limited by the impact of fires, are generally more susceptible to defoliation and death due to insects and are more prone to diseases than ponderosa pine. The multi-storied condition of these stands also make them more vulnerable to insects.

In some pine stands, density related mortality and loss of vigor created by the exclusion of fire is creating the conditions for bark beetle attack and subsequent death of many groups of trees.

Dead trees in the river corridor have increased fuel loadings and the probability of catastrophic wildfire. This poses a threat to both the river values and to adjacent lands.

Stand structure and species composition would be affected in different ways by the presence or absence of timber management.

Addressing this issue requires the addition of forest health to concerns about scenic and wildlife values in timber management planning for the corridor.

Recreation

A general trend of increasing recreation in eastern Oregon is expected to continue. The designation of these rivers as part of the Wild and Scenic Rivers System is expected to attract visitors.

Existing facilities may not be adequate to meet the expectations of these new visitors. Other resources and river values may be affected by recreation visitors and facilities.

Addressing this issue requires determining the kind of recreational experience which should be offered in various portions of the corridor.

Watershed and Water Quality

Current and future activities can affect water quality and quantity, bank and channel stability, and aquatic and riparian habitats along streams and around wetlands. Key water quality parameters include bacteriological contaminant levels, turbidity, and water temperature.

Activities can also impact soils, indirectly reducing water quality and quantity. The removal of effective ground cover, soil compaction, and soil displacement can all be involved.

There are many diversions above the corridor on tributaries to the Malheur River in Logan Valley. These diversions have an effect on water quality and quantity in the designated river. These water users could be impacted by scenic river management. There may also be opportunities for more water uses which will be compatible with the management objectives for this river.

Cultural Resources

There are two old logging camp sites and remnants of a splash dam used for moving logs down the river dating from the early part of this century. The historic value of these sites was determined to be outstandingly remarkable due to the uniqueness of the splash dam method of logging in east central Oregon. There is an opportunity to interpret these early logging practices in the river corridor.

Protection of cultural resources is both mandated by law and regulation, and is of concern to the public.

Extensive cultural resource surveys have also identified 12 prehistoric sites along the river corridor.

Addressing this issue requires the implementation of measures necessary to document or protect cultural resources and identifying interpretation opportunities.

Minerals

Mining is permitted in scenic rivers by the Wild and Scenic Rivers Act. The Act has withdrawn mining entry within 1/4 mile of the river in the wild river section.

There are no current mining operations in the corridor but future mining could affect scenic, recreation, water quality, and fish habitat values.

Addressing this issue involves developing conditions for mining operations to mitigate impacts on river values in the scenic segment of the river and within the wild segment of the corridor outside the minerals withdrawal area.

Social and Economic Considerations

The amount of timber to be produced within the scenic river corridor and possible curtailment of grazing are major economic issues.

Although the volume of potential timber harvest is small, any reduction in harvest is controversial in local communities. The impacts on local economies, funding for schools, and income to Grant and Harney Counties are involved.

There is also a concern that changes in livestock management may place the economic viability of ranching operations in jeopardy.

Management changing the availability or nature of recreational opportunities in the river corridor constitutes an important social issue.

Measures of response to this issue include timber volume planned for harvest and animal unit months.

Adjacent Activities

Management activities outside the corridors can affect scenic river values and river management can affect activities and resources on adjacent lands.

Addressing this issue will involve reviewing standards and guidelines for activities in adjacent management areas to see if they are compatible with scenic river values. The effects of river management on land outside the corridor, including non-federal landownerships, must also be determined.

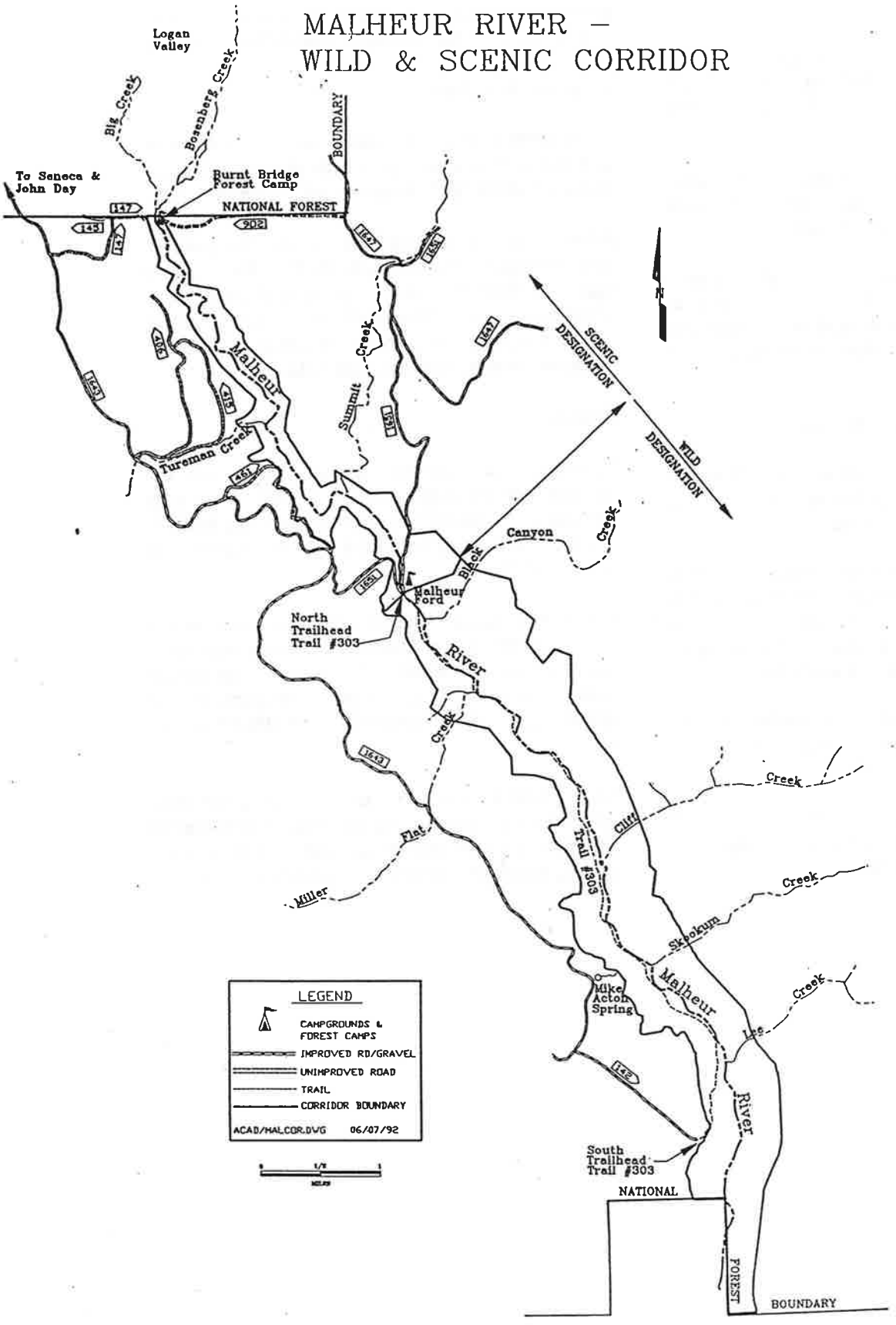
Access

Future access needs for the river corridor may not be met with existing roads and trails. Access to desired potential dispersed campsites may be limited. Trailheads may be inadequate for current and future needs.

Conversely, existing roads and trails may be adversely affecting river values. The harm can be direct, i.e. the visual effect of a road in or near natural settings, or indirect, i.e. increased sediment in trout spawning areas due to people and cattle movement on trails.

An overriding issue in the preparation of this environmental assessment was the need to give special attention to the outstandingly remarkable values -- scenic, geologic, historic, and wildlife habitat.

MALHEUR RIVER – WILD & SCENIC CORRIDOR



Chapter Two

Affected Environment

To evaluate the implications of the proposed management alternatives, described in Chapter 3, an understanding of existing conditions in the river corridor is required. A brief description of the river given in Chapter 1 is expanded below.

Outstandingly Remarkable Values

Congress initially cited the extraordinary scenery as the reason for including the Malheur River in the Wild and Scenic River System. In 1989 and 1990 a resource assessment was completed in conjunction with the river corridor boundary planning effort. It was determined that the geologic value was also outstandingly remarkable.

Following a second resource assessment by the Malheur Wild and Scenic River Interdisciplinary Planning Team as part of this management planning process, two other outstandingly remarkable values were identified, wildlife habitat and historic.

Geology

The geologic values of the river corridor were determined to be an outstandingly remarkable value in the resource assessment process.

The Malheur River lies adjacent to and through the interior of a down-thrown block (graben) area that lies between two south-southeast tending faults extending beyond the Forest boundary. At the lower end of Logan Valley, the northern portion of the corridor passes through areas where glacial moraines and alluvium have been deposited on bedrock materials.

The volcanic materials are best exposed in the southern portion, where the river has carved the deepest canyon. The distance from the top of the canyon to the river level ranges from 300 to 1,000 feet.

Fifty-foot high vertical cliffs are common in some areas. Weathering has created pinnacles and windows or small arches through portions of the outcrop in others. Massive talus slopes below outcrops attest to ancient mass movements or slope failures.

Bedrock materials along the river canyon walls are predominately Strawberry Volcanics Formation lava. These volcanics were extruded through shield volcanos and several vents in the vicinity of Strawberry and Lookout Mountains during a series of eruptions during the Miocene and early Pliocene ages.

The most active period occurred between 12 and 15 million years ago within an active structural basin that developed in the transitional zone between the Columbia Plateau and the Basin and Range geologic provinces.

Tectonic extension forces literally pulled the surface apart in east and west directions during this period resulting in cracks, faults, and fissures through which the lavas were extruded.

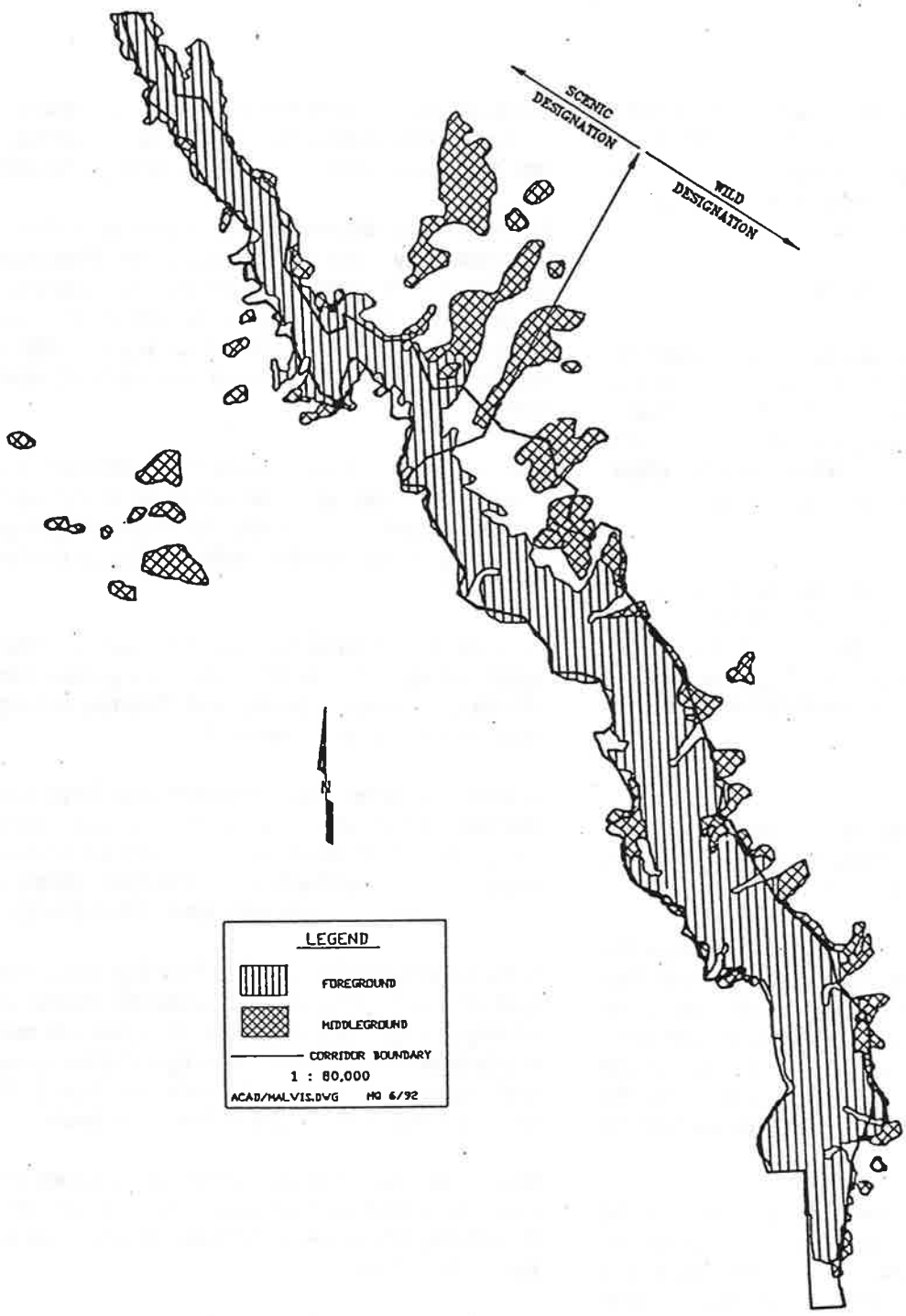
A series of essentially horizontal lava flows were layered on top of one another. Individual layers rarely exceed 40 feet in thickness and are typically separated by relatively thin interflow layers of scorched soils, volcanic ash, and rock materials.

The rock in these flows ranges from fine to medium-grained basalt and basaltic andesite. Rocks are usually medium to pale-grey in color but are commonly streaked or mottled with lighter grey, green, and reddish brown mineral concentrations. These rocks are generally stable and resist erosion.

Some flows have massive columnar structure, with columns up to 8 feet in diameter. But in much of the Strawberry Volcanics, a plate-like structure or texture is dominant.

The Malheur River offers an excellent opportunity to view the Strawberry Volcanics within a river canyon setting. This fact and the contribution of geology to scenery including form and color, pinnacles,

MALHEUR WILD & SCENIC RIVER AREA SEEN FROM RIVER, MEADOWS AND MALHEUR RIVER TRAIL



hoodoos, cliffs, overhangs, and large talus slopes resulted in the determination that geology is an outstandingly remarkable value.

Scenery

The scenic value of the river corridor was identified by Congress and verified during the resource assessment process as outstandingly remarkable. The combination of water, diverse dramatic landforms, variety and color of vegetation, and the old-growth tree component, all within a relatively undisturbed environment, creates an unusual landscape throughout the year.

Scenic Segment

The upper portion of the river corridor flows from the edge of a wide grass valley through a shallow canyon. The canyon walls are steep in places with exposed jagged rock surfaces and scattered vegetation. This is a quiet and secluded setting with limited views of what is hidden around the next bend. Wildflowers are abundant in meadows adjacent to the river. The river provides a pleasing scene as it flows with riffles and pools through these meadows.

Seasonal colors, dull green grass on the hills and yellow, red, and blue flowers in the summer; splashes of red shrubs and yellow larch trees in the fall; and a blanket of white in winter, contrast with the brown and tan rock formations and add to the beauty of the area.

The existing primitive camping facility at Burnt Bridge Forest Camp is evident to the casual viewer, but does not dominate the landscape in that portion of the corridor.

Views of the rugged and sometimes snow capped peaks of the Strawberry Mountains and other land surrounding Logan Valley are gained by looking north from the river.

Wild Segment

The lower portion of the river corridor descends into an ever deepening, steep, enclosed canyon that is eventually hundreds of feet deep. Crags and cliffs jut out from the steep cascading talus slopes and deep ravines.

Trees and shrubs grow in stringers on the rocky slopes. The Malheur River Trail parallels the water's edge and can be accessed at the northern and southern ends of the canyon. There are enclosed views along the Malheur River Trail and panoramic views into the deep canyon from locations along the rim. Old-growth trees are a dominant landscape feature in this part of the corridor. Evidence of human intrusion in the river corridor is slight.

Visual Management

Visual quality objectives are management standards and can vary according to the distance between viewer and setting. In the scenic portion of the corridor, 671 acres are seen as foreground (within 1/2 mile of the river), 14 acres as middleground (between 1/2 and 5 miles of the river), and 111 acres are unseen islands. In the wild section those figures are 2,212 acres foreground, 261 acres middleground, and 468 acres unseen islands. Approximately 426 acres outside the river boundary are seen as foreground and 1,825 acres as middleground.

Fisheries

The Malheur River flows south from Logan Valley and is fed by streams originating primarily within the Strawberry Mountain Wilderness. These waters eventually reach the Pacific Ocean via the Snake and Columbia Rivers.

The river is an important producer of gamefish in the region. Native redband trout, stocked rainbow trout, Eastern brook trout, and mountain whitefish are caught by local and visiting anglers. The catch rate is high but few large, "trophy" fish are taken. Bull trout are found in cold water tributary streams above Logan Valley. The Oregon Department of Fish and Wildlife (ODF&W) has placed an emergency closure on the taking of this species throughout southeastern Oregon because of the precarious condition of the populations.

The stocking of rainbow trout, which began in the mid-1950's, has been reduced in recent years because of possible competition with native redband trout. Currently about 1,100 legal sized fish are stocked annually at Malheur Ford. The ODF&W feels that the risk of interbreeding with wild redband trout is minimal at the current stocking level.

Eastern brook trout were introduced into High Lake in the Strawberry Wilderness Area many years ago. These fish escaped into Lake Creek, and have since populated the river and tributary streams above Logan Valley. Brook trout and bull trout are closely related and can interbreed. Brook trout do not have the same requirements for cold water as bull trout, and are still found in the river.

Prior to the construction of Warm Springs Dam in 1919, runs by two anadromous (ocean going) species, the chinook salmon and steelhead trout, were supported by the river. Documented historic Indian fishing sites, located downstream in the Drewsey area, attest to the previous magnitude of this fishery.

Bull trout distribution was also much greater before construction of this dam. The species probably migrated through and reared in the Malheur River at that time. Bull trout have not been found within the wild and scenic portion of the river in recent surveys.

Warm water temperatures, irrigation diversions, increased fishing, competition with other fish, interbreeding with introduced brook trout, and other habitat changes have affected current distribution and abundance of bull trout within the watershed.

Irrigation diversions located outside the river corridor in Logan Valley are of concern for all fish species in the river. These diversions reduce instream flow and trap fish in unscreened diversions. Ongoing efforts to remedy this situation are not part of the wild and scenic river management plan but are very significant to the condition of the fishery.

Like the bull trout, redband trout are listed as a Category 2 species under the Endangered Species Act, which means that additional information is required before a decision about listing can be made. Both species are on the Regional Forester's Sensitive Species list.

Five minnow, two sucker, and one sculpin species also occupy the river. Beaver occupy the river corridor and improvements in beaver habitat could benefit the fishery.

Temperature is a critical factor for cold-water species, especially bull trout. The water temperature approaches 70 degrees F. during the hottest times of the summer. This is primarily attributable to an absence of shade and the water diversions for flood irrigation in the Logan Valley, north of the designated portion of the river. Due to the north-south orientation of the river within the wild and scenic corridor, increases in shade would not produce a major reduction in temperature. Therefore, there is not a realistic opportunity to provide year-long habitat suitable for bull trout in the wild and scenic river corridor.

Otherwise, water quality is generally high, with low levels of sediment and suspended materials. Species composition and abundance of mayflies, stoneflies, and caddisflies indicate high water quality and an ample food supply for fish.

The Malheur River is dominated by riffles; because of the limited amount of large wood in the channel, there are few large pools. Material of this sort may have been flushed away during the 1964 flood and, below Malheur Ford, by a splash dam during the early days of logging 75 to 80 years ago.

Large wood (greater than 6 inches in diameter and 20 feet long) in the stream averages 95 pieces per mile. Of this, only about 25 pieces per mile are greater than 20 inches in diameter. However, the constrained channel immediately below Malheur Ford has a total large wood count of over 150 pieces per mile for this short reach.

Streambanks are generally rated between 50 and 75 percent stable but some were observed to be more than 75 percent stable. Streambank stability below 80 percent indicates unsatisfactory conditions. Improvement opportunities are indicated for this condition. Woody streambank vegetation (shrubs and trees) cover is only 20 to 50 percent in most areas, well below the potential on most sites and also indicative of unsatisfactory conditions.

This unsatisfactory riparian condition rating is based on the needs of the riparian-dependent resources, specifically fisheries. The potential of the riparian area is for more vegetatively stabilized streambanks, with low overhanging vegetation and stable undercut banks. These conditions are important for fish (trout) habitat quality. Due to the natural high rock content and low erosion potential of these streambanks, this unsatisfactory rating does not indicate a large adverse effect on water quality in the form of sedimentation.

Wildlife

Wildlife habitat was determined to be an outstandingly remarkable value for the river corridor.

The scenic portion of the river, from Logan Valley south to Malheur Ford (approximately 6 miles), is characterized by long sideslopes grading slowly down to the river. There are numerous sand and gravel beds and the river is readily accessible to numerous species of wildlife.

Species associated with Great Basin uplands, streamside and marsh riparian areas, and ponderosa pine and mixed conifer forests use the river corridor.

From Malheur Ford to the Forest boundary, the 6 miles of wild river corridor, the river runs through a deep canyon. Its steep slopes are vegetated by a variety of plant communities and are broken by cliffs and rockslides. Forested sites intermingle with nonforested sites and this edge habitat supports many species of passerine birds (songbirds), raptors (hawks and eagles), small mammals, and big game. Old burns, varying aspect, uplands, and riparian habitat contribute to habitat diversity.

Burned areas provide snags, raptor hunting perches, and early seral stage grass/forb/shrub habitat. These different plant communities and species create a variety of microclimates, producing niches for many species.

In portions of the wild section, steep and rocky canyon walls discourage human incursions and provide seclusion for animals, including cougar, which seek refuge from disturbance. This area provides potential habitat for wolverine, but they currently do not inhabit the corridor. Excellent potential roosting and nesting habitat for northern bald eagles, a threatened species, has been recognized in the Pacific States Bald Eagle Recovery Plan.

Mule deer, Rocky Mountain elk, and bear are frequently seen in the corridor. Antelope are seen in the uplands and flats above the wild river section. Game birds are less common. Sage grouse, a species on the Regional Forester's Sensitive Species list, occurs west of the river and is suspected of ranging into the corridor from time to time.

A pair of osprey nest above Malheur Ford and another nest is located near Twin Springs, about 1.5 miles west of the river corridor. These nests are thought to be the southernmost nest sites in the Blue Mountains.

Over 195 species of birds, 70 species of mammals, and 20 species of amphibians and reptiles are known or suspected to spend portions of their lives in the corridor.

Stands of ponderosa pine and mixed conifer old growth in the corridor are unique because of the large amount present in contiguous blocks, the diversity of tree species, and the unroaded nature of the corridor. The abundance of cavity dependent species is a reflection of the large number of snags throughout the corridor.

Approximately 370 acres in the wild segment and 30 acres in the scenic were inventoried and designated as old growth (MA 13) in the Forest Plan. Approximately 185 acres within the corridor were identified as replacement old growth for the designated old growth. About 9 acres of these designated stands and about 5 acres of the replacement old-growth stand lie outside the river corridor. Current validation studies to be completed in the fall of 1992 will help to identify if these old-growth stands are necessary to the MA 13 strategy.

These designated old-growth stands are only a portion of the area within the corridor which has the potential to be, or currently exists, as old-growth habitat. There are approximately 1,350 acres, or 35 percent of the river corridor (158 acres in the scenic segment and 1,192 acres in the wild segment) of existing old-growth habitat. Approximately 390 acres which were burned in a wildfire in 1989 have the potential to develop into old growth in the future.

The corridor is generally undisturbed. Extensive harvesting of large ponderosa pine trees occurred in the river canyon, primarily within the wild segment of the corridor, in the early part of the century. These harvested areas have regrown and now again provide old-growth habitat values. Only two roads enter the river corridor in the scenic segment. The river corridor provides habitats with high structural diversity and development.

There are several types of rocky habitat along the wild river section. Talus provides habitat for many

small mammals and their predators. Areas of large jumbled rock are used by bobcats and cougar and are occupied by an interesting array of shrubs supporting songbirds and small mammals.

Approximately 40 percent of the vegetation in the corridor is grasslands/shrublands/rocky areas; 15 percent old-growth ponderosa pine; 20 percent old-growth mixed conifer; 12 percent young to mature forest; 12 percent seedling/sapling; and 1 percent lodgepole pine.

The river corridor provides an important connectivity, or link, between the Blue Mountains and the Great Basin physiographic provinces and between adjacent lands above the canyon rims. The importance of this link increases as habitat components are altered in the adjacent lands.

The combination of the diversity of habitats, the associated diversity of wildlife species present, and the importance of the connectivity corridor between physiographic provinces was the basis for the determination of wildlife habitat as an outstandingly remarkable value.

Sensitive Plants

Potential habitats for sensitive plants were surveyed in 1991. No sensitive plant populations have been located in the river corridor. However, the corridor does contain areas where potential habitats for sensitive plants exist. Sensitive plants may inhabit the corridor, but are yet undiscovered. Some areas may require further survey and analysis of site-specific project effects when specific projects are proposed.

Watershed

Andesite and basalt bedrock in the Malheur River drainage, described above under Geology, are among the most erosion resistant on the forest. Landforms are stable and not prone to mass failures.

Annual precipitation ranges from 45 inches of rain and snow per year in the upper end of the drainage in the Strawberry Mountain Wilderness to as little as 15 inches where the river leaves the forest.

South flowing streams, such as Big Creek and Lake Creek, originate in high glaciated basins to the north of Logan Valley and generate abundant flows of cool water. Broad gentle basins with deep glacial soils in the upper reaches of these streams combine with winter precipitation to facilitate snow accumulation and retention.

Logan Valley is broad and flat and has filled with glacial outwash materials. Other major streams that join there to form the Malheur River include Bosonberg Creek and Crooked Creek. The Malheur River begins at the confluence of Big Creek and Bosonberg Creek in the southern portion of the valley.

Below Logan Valley the Malheur basin changes dramatically. Large dendritic tributaries collect water outside the river canyon and occasionally, as with Summit Creek to the east and Frazier Creek to the west, break through to the river.

Another striking change occurs below Malheur Ford where deeply incised drainages, such as Cliff Creek and Black Canyon Creek, flow into the river from the east. They contribute significantly to fall and spring flows, but contribute little during the summer.

Water Quality

Temperatures of water in the Malheur River are discussed in the Fisheries section above. The mostly unshaded, north to south flowing stream has a dark rock substrate, which tends to absorb heat from the sun. While summer temperatures are between 45 to 60 degrees F. in the tributaries, they are frequently in the upper 60's in the river.

Water is also heated and picks up bacterial contaminants and sediment when it is used for flood irrigation of pastures in Logan Valley.

Because of low annual precipitation in the southern portion of the drainage, some upland areas are unable to support 50 percent vegetation ground cover and are potential sources of sediment. Such areas, however, comprise only 15 percent of the corridor and rock armoring frequently replaces vegetation in reducing the risk of sedimentation. Less than 5 percent of soils in the drainage are erosive soils with high clay content. Turbidity is generally low in the river.

Channel and Floodplain Morphology

The Malheur River gradient through the wild and scenic segments ranges from 1 to 2 percent and the channel is relatively straight. The channel bottom is generally well armored by small boulder and cobble sized materials and channel width increases from 30 to 40 feet below Logan Valley to 40 to 50 feet in the lower reaches.

The river's floodplain is narrow, never more than two to four times the channel width. Just below the confluence of Tureman Creek, subsurface ground water flow encounters a low canyon wall which forms a series of low waterfalls on the west side of the river.

In the canyon below Tureman Creek, the floodplain narrows rapidly until it becomes little wider than the river itself. There are a few benches but the corridor remains confined. Shallow soils dramatically reduce the amount of adjacent wetlands.

Water Quantity

Little actual flow data is available for this portion of the Malheur River. There is, however, a U.S. Geological Survey gauging station below the wild and scenic portions of the river near Drewsey. Several large tributaries have added water to the river between the designated section and the station but the data below, given in cubic feet per second, shows yearly fluctuations. The impact of 4 recent years of drought is also indicated.

Largest Flood:
December 23, 1964 -- 12,000 cubic feet per second

Lowest Flow:
Various Times -- 0 cubic feet per second

	Average 1920-88	Average 1987-90 (Drought)
October	42.3	49.8
November	69.9	72.4
December	105.1	67.6
January	147.1	64.1
February	269.9	113.4
March	464.7	458.7
April	659.4	364.3
May	354.4	60.1
June	140.8	51.7
July	29.1	13.7
August	10.4	4.1
September	14.8	9.8
Annual	191	119

Fire History, Timber Harvest, Road Construction, Etc.

Approximately 1,800 acres in the headwaters of Bosonberg Creek burned in 1959. In 1990, the Sheep Mountain Fire burned approximately 1,980 acres in the Summit Creek headwaters and the Corral Basin and Snowshoe Fires burned 8,400 acres in the tributaries of Summit Creek, Big Creek, and Bosonberg Creek. Large runoff events after these fires deposited ash into the affected streams producing temporary increases in turbidity and alkalinity.

These effects are expected to be short lived but other effects -- the timing and amount of available flows due to altered snowpack accumulation and melting rates and the loss of shading -- will be of longer duration.

These increases in temperature were estimated during fire recovery efforts.

Snowshoe Creek	1.0 degrees F
Corral Basin Creek	2.1 degrees F
048 Creek	1.4 degrees F
050 Creek	3.6 degrees F
Bosonberg Creek	1.4 degrees F
Big Creek	0.8 degrees F
Malheur River	0.6 degrees F

Timber harvest and road building have occurred at relatively high levels in the lower elevation portions of the Malheur River drainage. This is particularly true in areas burned in the Snowshoe Fire, but timber salvage activities included measures to protect water quality and watershed stability.

Most tributaries to the lower reaches of the river flow intermittently and do not increase summer water temperatures. Some erosion and sedimentation has occurred, primarily because of poor road location and skidding patterns, but long, steep, sediment deficient reaches on these tributaries are capturing the sediment before it reaches the river.

Grazing is concentrated in these portions of the drainage where timber management has occurred. Some riparian areas, particularly along the gentler, wider reaches above Tureman Creek, Crooked Creek, and Summit Creek, are heavily grazed by wildlife and livestock. This heavy grazing contributes to higher water temperatures, turbidity, and sedimentation where the riparian areas are not protected by well armored streambanks and are not located in steep canyons which cattle tend to avoid.

Timber

There is a great variation in aspect and soils within the wild and scenic corridor which has produced a broad range of timber types. The amounts of different tree species are described in the Wildlife section. There are dense stands of large ponderosa pine and fir trees located along the river and on the canyon slopes within the corridor, primarily in the wild segment.

Much of the corridor is not potentially suitable for commercial timber production due to economic considerations or anticipated regeneration problems. These areas would not be harvested even if it were allocated to general forest. Volumes per acre vary significantly and are very low in some areas. Logging costs would be high.

Insect and disease occurrences are generally low at this time, but the potential for more outbreaks is increasing. Years of fire suppression has allowed shade tolerant species, such as white fir, to grow in the understory of stands which have ponderosa pine overstories. Bark beetles and spruce budworm (a moth larva) have caused death of trees in these stands, but the incidence is not as high as on other areas of the forest where epidemic insect populations are currently killing large acreages.

Lodgepole pine stands in the scenic portion of the river are being killed by bark beetles and the risk of epidemic infestation is high. These stands are generally small in size. Some are located within the riparian area adjacent to the river. For the most part, these stands are mature. Lodgepole pine generally regenerates after fire, and due to years of fire suppression, these mature stands are susceptible to insect attack, also part of the natural cycle.

Mixed conifer stands are generally healthy, but some mortality has occurred. Ponderosa pine stands are generally open, parklike, low density stands which are at low risk from insects at current stocking levels (densities), but some stands are overstocked.

Fire/Fuels

The fuel loading in the corridor varies depending on the vegetation type. Generally, fuels are light in ponderosa pine dominated sites, less than 3 tons per acre in the 0 to 3-inch size class. Mixed conifer sites have higher loadings, with estimates up to 6.1 tons per acre in this small size class. These small fuels are the main contributors to fire intensity and rates of spread.

During the past 5 to 7 years, insects and diseases have afflicted timber in the river corridor. One to 3-acre areas of dead and dying timber, mostly white fir, are still standing. Most of these trees will be on the ground within the next 5 years, creating conditions which exceed Forest fuel management standards in some areas of the corridor. Estimates are that loadings will increase as these trees are added to the fuel bed. Larger fuels will increase to fuel type 3-MC-3.

The 3 to 20-inch material does not contribute significantly to the rate of spread but does contribute to the residual effect of fire on soils once the fire front has passed. Larger fuels continue to burn for much longer. This can damage soils as the litter and duff layers are consumed.

Lodgepole sites generally have loadings of 5 tons per acre in the 0 to 3-inch class (1-LP-1).

The potential for a large catastrophic fire is currently considered low, but the potential will increase over time as loadings increase. Current fuel loadings are represented by the following fuel profiles as described in PNW-105, Photo Series for Quantifying Natural Forest Residues in Common Vegetation Types of the Pacific Northwest:

PNW-105 Photo	Page	0 - 3" (T/ac.)	3" + (T/ac.)
3-PP & Assoc-3	144	5	7
3-PP & Assoc-4	156	4	2
2-PP-2	170	3	6
1-PP-4	196	1	0
8-PP-4	210	5	44

The Malheur River is a moderately used recreation area during the spring, summer, and fall seasons; the risk of human caused fire is low.

There have been two lightning fires (10 and 390 acres in size) in the past 10 years in the river corridor. With insect and disease killed trees, an increase in recreation during the fire season, and continuation of the drought, the prospect of catastrophic fire increases every year.

Range

There are portions of four allotments within the Malheur Wild and Scenic River corridor.

Bluebucket Allotment

Three permittees are allowed to graze a maximum of 420 cows and calves from June 1 to September 30, which is 1,680 animal months (AM's). There are 23,753 acres in this allotment, only 1,916 acres are within the river corridor. Based on the Forest Plan's 45 percent utilization standard, the corridor's carrying capacity has been estimated at 40 AM's. In 1991, the actual use of grass and grasslike forage by livestock and wildlife in the river corridor was between 70 and 80 percent.

A four pasture deferred rotation grazing system is used. The northwest pasture is grazed in July one year and September the next year. When cattle are in these pastures they drift to the Malheur River and move toward the private land at the lower end of the river.

Because of steep terrain or limited forage (less than 50 pounds per acre), most of the river corridor is classified as secondary or non-range. Riparian plant communities appear to be dominated by Mountain Alder and Willow/Kentucky bluegrass.

Star Glade Allotment

A single permittee is permitted to graze 29 cattle from June 30 to October 30 (145 AM's). Of the 1,800 acres in the allotment, approximately 154 are within the river corridor.

Using the Forest Plan's 45 percent use standard, an estimated 12 AM's in forage is available in the corridor. Livestock and wildlife use in the riparian zone during 1991 was estimated at between 70 and 75 percent.

The north pasture is primarily private land and the south pasture is entirely within the National Forest. Grazing is rotated between the two pastures. The Malheur River is the main source of livestock water.

Most of the river corridor portion of this allotment is also classified as secondary range.

The riparian and upland vegetation is in fair condition with a stable trend. The fair condition description applies to the density and vigor of the willows and density of grass cover.

Dollar Basin Allotment

One permittee is permitted to graze 180 cattle from June 1 to October 10 (780 AM's). There are 14,370 acres in this allotment. About 660 acres are within the river corridor. It is estimated that the river corridor contributes 30 AM's of the total for the allotment. It is rested, not grazed by livestock, every 3 years. This rest last occurred in 1991.

Riparian shrubs are browsed heavily by wildlife and pack animals at Malheur Ford even in years when the allotment is rested. Recreation use also results

in trampled vegetation on the river banks and in the meadow.

Riparian vegetation range condition for the corridor in this allotment was generally rated as fair to good with an apparent upward trend (condition appears to be improving).

Central Malheur Allotment

Two permittees are allowed to graze 197 cattle between June 1 and September 30 (788 AM's). No forage has been allocated to the allotment from within the river corridor, but livestock do drift down to the Malheur River on occasion.

Cultural Resources

The uniqueness of an old splash dam below Malheur Ford resulted in the addition of historic interest to the number of outstandingly remarkable values the Malheur Wild and Scenic River possesses.

The dam was used for releasing water to transport logs down the river to a sawmill at Milldale in the vicinity of Drewsey. Downstream from the dam site, many high stumps on benches along the river are evidence of logging in the area before the advent of chainsaws.

There were three logging camps along the river. One of these was not located on the Forest. Two of the camps were in the corridor. A cabin remained at one logging camp site until 1989 when it was burned by a wildfire.

The dam, logging camps, and sawmill were owned by John Ott. Horses were used to drag logs from the canyon into the river. Water was released through gates in the dam and the logs washed downstream to the sawmill. Ott operated his sawmill at Milldale from 1912 until the early 1920's.

Only six other splash dam sites are known to exist in northeastern Oregon.

The Malheur River was used for hunting, fishing, and plant gathering by the Northern Paiute, Umatilla, Cayuse, and Warm Springs people up through historic times. The river corridor area was within the Malheur Indian Reservation, which existed between 1872 and 1882.

Twelve prehistoric sites potentially eligible for listing in the National Register of Historic Places have been found in the river corridor. These include four new sites documented during a field survey of the area in 1991. Eight additional sites with known cultural significance have been found within 1/2 mile of the corridor boundary.

Ten sites contain stone tools and flakes (lithics) from the manufacture of tools. One is an uncommon site type where basalt cobbles were broken to test for tool making suitability. Two sites are trees from which the cambium layer was peeled for food.

Recreation

Recreation settings are described in terms of the Recreation Opportunity Spectrum (ROS).

In the scenic portion of the river corridor, recreation visitors encounter a natural appearing setting with little or no evidence of primitive roads. Traffic on the access roads to Burnt Bridge Forest Camp and Malheur Ford is light. The ROS in these areas is roaded natural, because of the roads and amount of interaction with others.

Fishing and dispersed camping are the primary recreational activities in the river corridor. The river has been stocked with rainbow trout for over 30 years and attracts both local anglers and, during the summer and fall, non-local anglers. Fishing is concentrated at Malheur Ford, where the stocking takes place, but some people hike the Malheur River trail for fishing access in the lower part of the corridor.

The Malheur River Trail (Number 303) parallels the river from Malheur Ford downstream for about 6.5 miles before climbing out of the canyon to a trailhead on Hog Flat. In general hikers rarely see each other, but there is evidence of other visitors, such as fire rings. There are some controls and restrictions but they are subtle. This trail is currently open for motorized and non-motorized use.

Recreational experiences in the wild portion of the corridor are similar to those provided in wilderness areas with the exception of the motorized trail use.

Primitive roads provide some access for people with high clearance vehicles to view the scenic portion of the river.

Dispersed Recreation

The dispersed camping areas at Malheur Ford and Burnt Bridge Forest Camps are inventoried as semi-primitive, motorized because of limited use, road access, and the primitive nature of the structures. There are no designated camp units and the only facilities are pit toilets.

Most fishing occurs near the Malheur Ford Forest Camp. The Burnt Bridge Forest Camp is less frequently visited by anglers, who also use the Malheur River Trail to reach fishing holes south of the ford.

Camping in the river corridor has remained fairly constant from year-to-year and is also concentrated around Malheur Ford Forest Camp and the Burnt Bridge Forest Camp, where access is relatively easy. There is some evidence of dispersed camping south of the ford, where sites are few and accessed only by the Malheur River Trail or by "bush-whacking" from the canyon rim.

Malheur Ford Forest Camp is located in a small, grassy, moist meadow. Ruts from vehicles driving across the meadow in the springtime frequently persist throughout the recreation season. At Burnt Bridge, sagebrush and grass are the primary vegetation.

Bird watching, general sight-seeing, wildlife viewing, photography, and cross-country travel also occur in the river corridor and are expected to increase in popularity. These activities are concentrated along road access to the river and are encouraged by the natural appearance of the area. Hunting, especially for deer and elk, is very popular in the vicinity of the river corridor.

There is evidence of past and current timber and range management activities in the scenic portion of the corridor. The former includes old harvest units, skid roads, and slash piles; the latter, fences, water developments, and livestock.

Livestock in or adjacent to camp sites remove vegetation, cause erosion, increase dust, and deposit manure. Fences interfere with cross-country travel and some visitors are distressed by encounters with cattle.

River recreation is primarily confined to swimming at Malheur Ford Forest Camp. There is some Class 1 and 2 whitewater boating from Burnt Bridge Forest Camp to the Malheur Ford during the spring, but downed trees in the river create safety hazards and the need for many portages.

Access

The Malheur River Trail (No. 303), currently listed as a National Recreation Trail originates at Malheur Ford Forest Camp and runs approximately 6.5 miles down the wild portion of the corridor to the southern trailhead. The northern trailhead is at Malheur Ford and has parking facilities and a toilet. Parking and horse facilities for trail users are available at the southern trailhead, which is located just outside the river corridor boundary.

The trail generally parallels the riparian zone along the river. Erosion has narrowed its tread in some sections and there is some conflict between hikers and cattle.

The only groomed snowmobile trail in the corridor is on Forest Road 902, which accesses Burnt Bridge Forest Camp. The river crossing is an old bridge on private land north of the National Forest boundary.

Cross-country skiing and mountain biking in the corridor are limited, the former because of the distance from plowed access roads and the latter because the trail was not built with this use in mind and is rated as most difficult.

Only a small portion of the corridor is accessible by roads because of the steep canyon walls along most of its length. Two roads access the river.

Road 1647 902 accesses the Burnt Bridge Forest Camp. This road is not surfaced, has created erosion problems because of steep grades, and is not suitable for low clearance passenger vehicles. Forest Road 1643 145 leads to the river west of the Burnt Bridge Forest Camp and has the same problems. Some vehicles ford the river here, but there is no official crossing.

Forest Road 1647 is of good quality and parallels the river outside the east rim of the designated scenic river corridor. Many unsurfaced roads lead from Road 1647 to the river. Because of the topography, foot travel is required to travel from the end of the road to the river. Road 1643, on the west side of the river, is similar to Road 1647.

Forest Road 1651 connects 1643 and 1647 and crosses the river at Malheur Ford. Road 1643 142 accesses the Malheur River Trail's southern trailhead outside the designated corridor. Road 1643 142 is graveled and in good condition.

Mining

The closest historical mining activity is 25 miles southwest of the designated wild and scenic river corridor in the Idol City Mining District. This was a small producer from both placer and hardrock mines and is currently being explored by Golden Chest, Inc., of California.

A literature and mining claim record search found no evidence of activity in the designated river corridor.

Chapter Three

Management Alternatives

The interdisciplinary planning team evaluated five alternatives for managing the Malheur Wild and Scenic River Corridor. The alternatives are described below. Several other alternatives, also described below, were considered but not fully analyzed.

The five alternatives which were evaluated, address the major issues described in Chapter 1 with special emphasis on the four outstandingly remarkable values: scenic, geologic, wildlife habitat, and historic.

Significant Issues

Scenic River Segment

1) Protection and Enhancement of Outstandingly Remarkable Values
2) Livestock Grazing
3) Recreation Use and Development
4) Timber Management and Timber Harvest
5) Old Growth Management

Wild River Segment

1) Protection and Enhancement of Outstandingly Remarkable Values
2) Livestock Grazing
3) Recreation Use and Development
4) Old Growth Management

The alternatives describe a range of approaches to address the key issues. Some alternatives include commodity production but all are primarily designed to protect and enhance wild and scenic river values.

A chart on Pages III-8 and III-9 provides a brief summary of how each alternative would treat major resources in the river corridor.

Public Involvement

A preliminary draft of four alternatives for managing the Malheur Wild and Scenic River was distributed to the public in December 1991. A meeting was also held with the Oregon Department of Fish and Wildlife in Hines shortly thereafter to discuss the four initial alternatives.

A briefing was held for the Grant County Court. The Grant County Court then conducted a public meeting on January 15, 1992, with over 60 individuals in attendance. A meeting with the Harney County Court was conducted on January 22, 1992, to brief the Commissioners on the preliminary alternatives and to receive feedback from the Court and from members of the public who were present. Affected range permittees met to discuss alternatives in Drewsey on January 22, 1992. A record of the discussion was kept and several letters from permittees were later received.

Terminology

The description of alternatives given below uses concepts and language from two Forest Service management systems:

> The Visual Management System: Visual quality objectives establish acceptable levels of landscape alteration based on management objectives. These objectives include preservation, retention, partial retention, and modification.
>
> The Recreation Opportunity Spectrum (ROS): The ROS is a system of planning and managing recreation resources. There are five ROS classes. These classes include primitive; semi-primitive, non-motorized; semi-primitive, motorized; roaded natural; and roaded modified.

Descriptions of these management systems' classes and objectives can be found in the glossary.

Alternatives Considered But Eliminated From Detailed Study

More than 100 written comments were received about the four draft alternatives. The comments were analyzed by the interdisciplinary team. Following this analysis, the alternatives were modified. Alternative 5 was added as a direct result of public comment.

Several members of the public suggested that an alternative be developed, which would have recommended to Congress that the river be "de-designated" a Wild and Scenic River. This was considered, but determined to be outside the scope of this planning process.

A prohibition of livestock grazing was also recommended, but this could violate the Wild and Scenic Rivers Act. Elimination of grazing was proposed in two initial alternatives in all or in part of the corridor. In the range of final alternatives described below, Alternative 2 would remove livestock from the corridor, but only with the agreement of the permittees. This alternative allows for disclosure of a full range of impacts of grazing.

Proposals to adopt the less constraining visual quality objectives of modification or partial retention were dropped from consideration because these levels of permissible alteration of the landscape would not protect scenic values. However, Alternatives 3 and 4 do allow partial retention for a short period of time, during which enhancement projects may be initiated.

Several preliminary alternatives proposed restricting the fishing season and limiting fishing to specialized fishing only, for example allowing fly fishing only, barbless hooks only, etc., in response to the impact current fishing may be having on redband trout. There were also proposals for more fish stocking and elimination of fish stocking, and the prohibition of introduction of non-indigenous fish and wildlife species. These were not pursued because the Oregon Department of Fish and Wildlife is responsible for regulating these activities.

An alternative was proposed which would set in motion a minerals withdrawal process for the entire corridor. Currently, lands within 1/4 mile of the river in the wild segment are withdrawn from mineral entry by the Wild and Scenic Rivers Act. This proposal was determined to be outside the scope of this management plan, but could be pursued at a later date.

A preliminary alternative was proposed that would have allowed developed and dispersed recreation opportunities within the corridor to be greatly increased. This proposal was dropped because of a lack of public support and the indirect effects it would have on river values.

Alternative 5 was developed in response to public expressions of satisfaction with current levels of development and recreation development and dissatisfaction with timber harvest and grazing conflicts. Grazing use in the wild segment of the corridor would be slightly reduced from existing permitted levels and timber harvest would be limited (not part of the scheduled harvest for the Forest).

Several suggestions by range permittees were incorporated into the alternatives which will allow better use of the corridor and easier control of cattle by the permittees.

Alternatives Fully Analyzed

In all alternatives, RIPARIAN AREAS would be managed according to Forest Plan Management Area 3A standards and guidelines, unless more stringent requirements are proposed. Forest-wide standards would be applied to meet WATER QUALITY and other objectives unless specifically restricted.

Alternative 1 - No (Change in Current) Action

Direction under this alternative would be the continuation of current management found in the Malheur National Forest Land and Resource Management Plan.

Scenic River Segment

The RECREATION Opportunity Spectrum (ROS) class would be semi-primitive, non-motorized, but some motorized travel would be permitted. The retention visual quality objective would be applied to the foreground of SCENIC vistas. Land seen as middleground would have a partial retention visual quality objective; background areas would have a modification objective.

In addition to habitat maintenance and improvement, FISH and WILDLIFE projects would emphasize opportunities for viewing wildlife and protecting and enhancing habitat for proposed, endangered, threatened, and sensitive (PETS) species. Habitat for 60 to 100 percent of the potential populations of primary cavity excavators and nesters would be provided.

Livestock GRAZING would meet Forest Plan utilization standards and allotment management plans would consider scenic river values. Range structures would meet visual quality objectives.

During development of the Forest Plan, 1,027 acres in this scenic river corridor were considered tentatively suitable for TIMBER MANAGEMENT. When the river corridor boundary was established, 439 tentatively suitable acres were included. 555 acres of tentatively suitable land not included in the river corridor became part of an adjacent visual corridor. Another 33 acres was inventoried as OLD GROWTH which will be managed under MA 13 standards and guidelines.

Prescriptions meeting the visual quality and other management objectives could be written and implemented to permit sustained harvest from these tentatively suitable lands.

Existing TRAILS would be maintained and 5 miles of new trails and a trailhead would be constructed upstream from Malheur Ford. Construction, reconstruction, and maintenance would be scheduled during low-use periods. Power equipment could be used. A snowmobile bridge would be constructed at Burnt Bridge Crossing.

UTILITY CORRIDORS or the installation of transmission lines would be discouraged. Scenic, recreational, and fish and wildlife values would be considered in selecting new rights-of-way.

CULTURAL RESOURCES would be inventoried. The significance of identified historic and prehistoric sites would be determined. After evaluation these sites would be either preserved and protected or documented.

MINERAL entry would be allowed. Operating plans must take scenic river values into account.

National Forest LANDS would be retained. No additional lands are to be acquired.

Habitations with direct adverse effects on river values would not be allowed. Fish habitat enhancement structures and activities would be permitted. Dams, power facilities, and levees (embankments), however, are prohibited.

Prescribed FIRE would be used to achieve a variety of resource management objectives. Natural fires may be used to allow fire to play its natural role. Endemic infestations by INSECT OR DISEASE are allowed to occur. Epidemics that threaten scenic values or adjacent lands may be treated.

Wild River Segment

RECREATION management would be the same as in the scenic segment except that motorized travel would be discouraged. Developed recreation facilities would be located outside the corridor but simple facilities may be provided within the river corridor.

The preservation visual quality objective would be applied to the foreground of SCENIC vistas. Land seen as middleground would have a retention visual quality objective and background areas would have a partial retention objective. The ROS class is semi-primitive, non-motorized.

FISH and WILDLIFE species indigenous to the area would be maintained with emphasis on the preservation of threatened and endangered species.

The conditions for GRAZING by livestock would be the same as in the scenic river segment.

TIMBER harvest would be excluded. The removal of individual trees may occur to benefit recreation or to meet other management objectives.

ROADS would not be permitted within the narrow, incised river valley. Where the valley is less narrow, roads would not be permitted within 1/4 mile of the river.

TRAIL management would be the same as that in the scenic river segment except that only unobtrusive trail bridges would be allowed.

MINERAL entry is precluded within 1/4 mile of the river.

Management direction for CULTURAL RESOURCES, LANDS, UTILITY CORRIDORS, FIRE MANAGEMENT, and FOREST HEALTH (insect or disease) would be the same as in the scenic river segment.

Approximately 370 acres are reserved as OLD GROWTH and 190 acres identified as replacement old growth in this segment of the corridor managed with MA 13 standards and guidelines.

Alternative 2

This alternative provides for river value protection through activities which are light-handed and simulate natural processes. There would be no commodity production of timber or forage. Activities which have limited or no effect to the natural processes within the river corridor may be allowed. This alternative was developed in response to proposals for low impact management.

RECREATION facilities (toilets) at the Burnt Bridge and Malheur Fords would be removed from the river corridor. Roads leading to these facilities would become trails. Access into and within the corridor would be by foot or non-motorized vehicle.

The ROS class would be primitive, non-motorized. No new trails would be constructed and the existing trail would be managed at the "more difficult" maintenance standard. No interpretive sites would be developed within the river corridor.

The preservation visual quality objective would be applied to protect SCENERY. The retention objective could be applied, however, to permit necessary recreation facilities and wildlife and fisheries improvements. The effects of prescribed fire would be considered natural occurrences.

The condition of FISH habitat would improve through natural processes and limited improvement projects. The improvement projects would mimic natural processes and include activities such as vegetative riprap, shrub and tree planting, seeding, installation of large woody debris, and boulder placement. Removal of woody debris from the river would be prohibited.

The maintenance and enhancement of WILDLIFE habitat would generally employ non-structural means. Inconspicuous or short-term structures such as bird boxes and nesting platforms for the reintroduction of indigenous or extirpated species would be allowed. Enough habitat to support 100 percent of the potential populations of primary cavity excavating and nesting species would be provided.

There would be no GRAZING of livestock within the river corridor. This permits baseline comparison with the impacts of grazing in other alternatives and would require the consent of the grazing permittees.

Approximately 14 miles of new fence and 10 new stock watering facilities outside the corridor may be required to implement this provision. The allotment boundary fence below Malheur Ford in the wild portion of the corridor would be removed.

Scheduled TIMBER harvest would not occur. Salvage of timber killed by wildfire or insects and diseases would not be allowed.

Enough OLD GROWTH habitat would be maintained in the short term to meet current populations of old-growth associated species. Prescribed fire will be the only management activity within the approximately 1,350 acres of old growth (158 acres in the scenic segment and 1,192 acres in the wild).

Alternative 3

This alternative emphasizes recreation. An expansion of current recreational facilities and improvement of access would increase visitation beyond the current level.

FISH habitat would be managed to protect threatened, endangered, or sensitive species. Projects would emphasize, but not be limited to, natural processes. Vegetative riprap, shrub plantings, seeding, boulder placement, and installation of large woody debris could occur.

Engineered structures such as weirs and jetties could be used if they do not interfere with the free flowing character of the river and meet visual quality objectives. The removal of woody debris from the river would be prohibited except when necessary to permit recreational boating or rafting.

Livestock GRAZING would meet Forest Plan forage utilization standards. Fences, water developments, and other range improvements would not occur within the riparian zone. Fences crossing the river to separate allotments would not be permitted to interfere with the free flowing character of the river.

Drift fences across the Miller Flat Creek drainage, the Mike Acton Springs drainage, and along the rim of the bench on the east side of the river in Section 20 (within the corridor), may be constructed to keep cattle out of the riparian zone.

Additional fences along the river corridor boundary and within the corridor may be required after site-specific analysis and revisions to allotment management plans. Fences posing a safety hazard to recreationists floating the river would be reconstructed to eliminate the safety hazard.

Campgrounds and sanitation facilities at or adjacent to Burnt Bridge Ford would be provided for RECREATION. A new trail and trailhead would be constructed on the west canyon rim in the wild segment and along the river from Burnt Bridge Ford to Malheur Ford in the scenic segment to provide better access to the river.

The trailhead at Malheur Ford would be reconstructed and the sanitation facility replaced with a new toilet. Road access to Burnt Bridge Ford would be improved with a higher standard road. Other roaded access points would be improved.

The ROS class for the scenic segment would be semi-primitive, non-motorized but snowmobiles would be permitted. A bridge crossing the river at Burnt Bridge Ford for snowmobiles would be allowed. With this exception, the trails would be managed at the "easiest" difficulty level for equestrians, mountain bike riders, and hikers.

The wild river segment would also be managed as semi-primitive, non-motorized but there would be no exception for snowmobiles. Potential user conflicts will be monitored. If conflicts arise, trail use will be re-evaluated.

The retention visual quality objective would be applied to the scenic portion of the corridor and preservation to the wild portion to protect SCENERY. Visual quality objectives may be relaxed for short periods of time to permit rehabilitation or enhancement of outstandingly remarkable values. Relaxing the visual quality objectives may occur only through site-specific analysis during the next 5 to 10-year period (until the Forest Plan is revised). Necessary recreation facilities, fences, wildlife improvements, and fisheries improvements may meet partial retention.

In the scenic segment, both structural and non-structural WILDLIFE habitat improvement projects may be implemented. Only non-structural improvements would be allowed within the wild segment. Exceptions would be permitted for minor water developments, such as guzzlers outside the river riparian zone. Temporary or inconspicuous minor structures such as bird boxes, nesting platforms, and hack sites would also be permitted.

Prescribed fire would be used to improve and enhance wildlife habitat. The creation of opportunities to view wildlife would be emphasized. Interpretive sites in both the wild and the scenic portions of the river would be allowed. Habitat would be provided to meet 100 percent of the potential populations of primary excavator species.

All lands within the river corridor would be classified as unsuitable for TIMBER MANAGEMENT. Non-scheduled timber harvest would be allowed outside the riparian zone in the scenic portion of the corridor to meet other resource objectives. Road construction for timber harvest is prohibited.

Salvage logging after catastrophic wildfire or insect and disease outbreaks may occur in the scenic segment, but new roads could not be constructed. Timber harvest would be prohibited in the wild section.

OLD GROWTH habitat would be maintained to meet current populations of old-growth associated species. Approximately 1,350 acres (158 acres in the scenic segment and 1,192 acres in the wild) meeting the regional definition of old growth would be available in the short term. MA 13 standards and guidelines for management of this habitat will apply.

Alternative 4

This alternative would emphasize commodity production, such as timber and forage production within the river corridor, and provides for additional recreation use.

FISH habitat would be managed to protect threatened, endangered, or sensitive species. Projects would emphasize, but not be limited to, natural processes. Vegetative riprap, shrub plantings, seeding, boulder placement, and installation of large woody debris could occur.

Engineered structures such as weirs and jetties could be used if they do not interfere with the free flowing character of the river and meet visual quality objectives. The removal of woody debris from the river would be prohibited except when necessary to allow safe recreational boating or rafting.

RECREATION facilities would be developed within the scenic segment of the river corridor and adjacent to the corridor along both segments.

A new campground would be constructed along the west rim outside the river corridor. Toilets, fire rings, picnic tables, and cattle exclosure fences would be installed at the Malheur Ford and Burnt Bridge Ford dispersed campgrounds. The ROS class for the scenic segment would be roaded natural and semi-primitive, non-motorized for the wild segment.

Existing road access would be improved to Burnt Bridge Ford and there would be additional access in the scenic section for recreation and timber harvest. Additional trails to the river from the rim would be permitted. A continuation of the Malheur River Trail would be constructed along the river between Burnt Bridge Ford and Malheur Ford and managed at the "easiest" difficulty level.

SCENERY would be protected with the same visual quality objectives as those applied in Alternative 3.

Both structural and non-structural FISHERIES and watershed improvement projects would occur within the river corridor.

WILDLIFE would be managed the same as in Alternative 3 except habitat would be provided to meet 80 percent of potential populations of primary cavity nester habitat in the scenic segment and 100 percent in the wild segment.

GRAZING would be allowed within the river corridor at Forest Plan utilization standards. Intensive grazing management strategies (with maximum forage utilization at 50 percent in riparian areas in satisfactory condition, 55 percent in non-riparian grassland communities in satisfactory condition, and 50 percent in non-riparian forested and shrubland communities) would be encouraged where appropriate to improve riparian conditions within the corridor and implemented through the allotment management plans.

Additional fences are allowed and may be constructed to exclude cattle from riparian zones. Additional fences along the river corridor boundary (drift fences across the Miller Flat Creek and Mike Acton Spring drainages) and within the corridor (along the rim of the bench in Section 20) are allowed and may be constructed to aid in controlling cattle from entering the riparian zone. Fences outside the riparian zone may be constructed if they are identified during site-specific analysis and allotment management planning. Five additional water developments outside the river corridor could be constructed.

All potentially suitable timber lands within the scenic portion of the river would be classified as suitable for TIMBER MANAGEMENT and scheduled for harvest. Timber yields similar to those in visual corridors within the forest are expected. Salvage logging in response to catastrophic wildfire or insect and disease kill would be allowed within the scenic segment. Timber harvest would be prohibited within the wild segment, but individual trees would be cut to provide large woody debris for fish habitat or to remove hazard trees.

OLD GROWTH habitat for associated species would decline from the current level. Approximately 403 acres (33 acres in the scenic segment and 370 acres in the wild) would be reserved and managed under MA 13 standards and guidelines.

Alternative 5

This alternative was developed in response to requests for a continuation of current recreational opportunities with less commodity production than that called for in Alternatives 1, 3, or 4.

No new RECREATION development would occur within the corridor but maintenance and minor improvements, such as replacement of existing toilets and campsite rehabilitation, would be permitted.

Future recreation site development in the area would be outside the river corridor. The ROS class for the river corridor would be semi-primitive, non-

motorized, except roaded natural in the vicinity of the two forest camps. Snowmobiles would be allowed in the scenic section.

The Malheur River Trail would be managed at the "more difficult" level for equestrians, hikers, and mountain bike riders. No new roads or trails would be constructed but existing roads, such as the road to Burnt Bridge Ford, may be improved to reduce resource damage.

SCENERY would be protected by application of the retention visual quality objectives in the scenic segment and preservation in the wild segment. Necessary recreation facilities, fences, and fish and wildlife improvements would meet the partial retention objective.

FISH habitat would be managed as in Alternative 3, although removal of large woody debris from the river would not be allowed.

WILDLIFE habitat would be managed as in Alternative 3.

GRAZING at levels which meet the Forest Plan forage utilization standards would be allowed in the scenic portion of the river under approved allotment management plans. In the wild portion of the river corridor, grazing would be reduced and a 35 percent utilization standard met. Range improvements would be the same as in Alternative 3, although additional measures may be identified in allotment management planning.

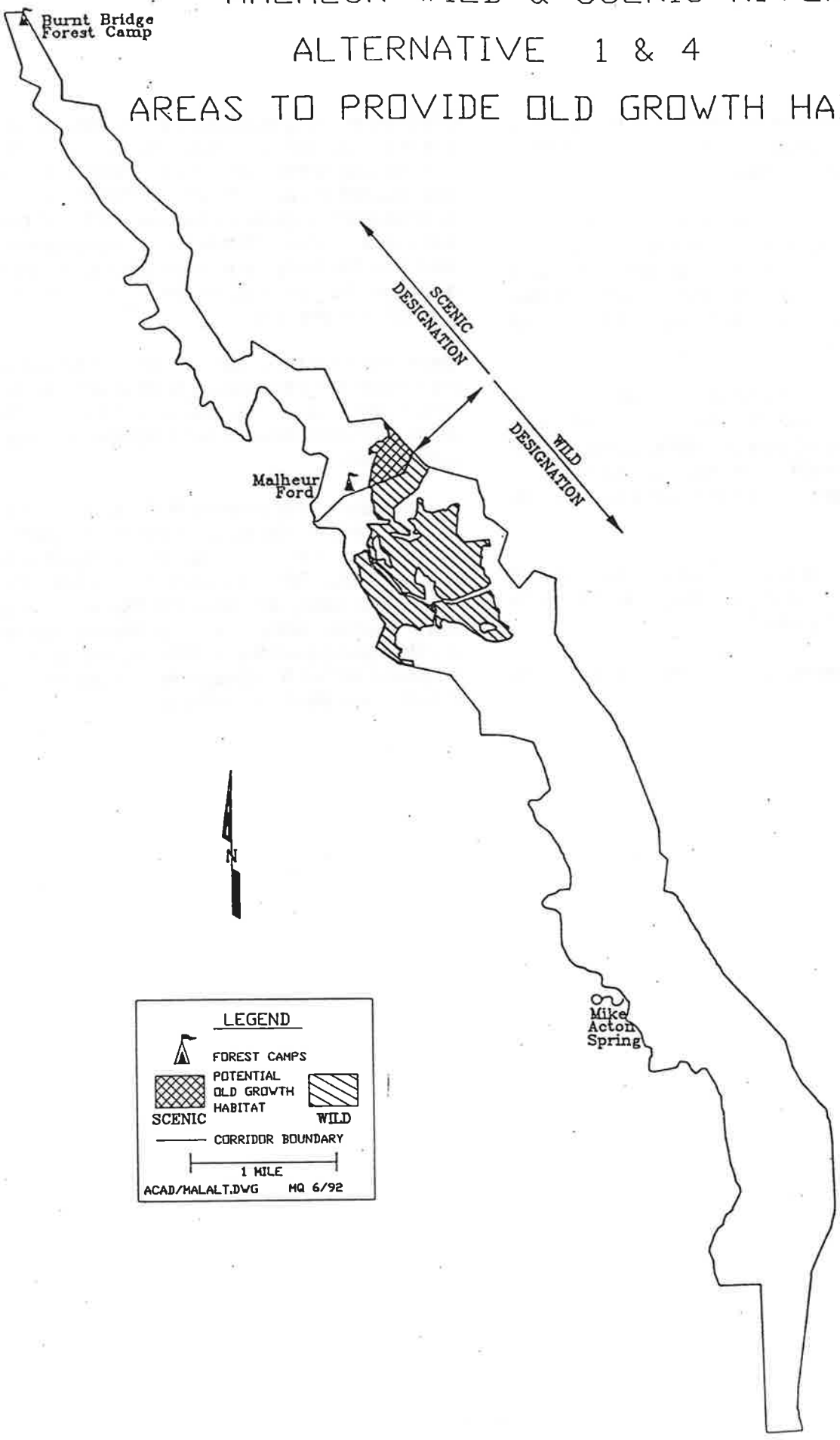
There would be no scheduled TIMBER harvest in the corridor but tree removal to meet other objectives could occur in the scenic portion. No new roads may be constructed but existing roads could remain open.

Approximately 1,192 acres within the wild portion of the corridor and 158 acres in the scenic portion would be maintained in conditions which provide habitat for OLD GROWTH associated species and meet visual quality and other objectives. Management practices which would be allowed include planting, prescribed fire, and the cutting of trees. Additional habitat for species associated with old growth would develop over time.

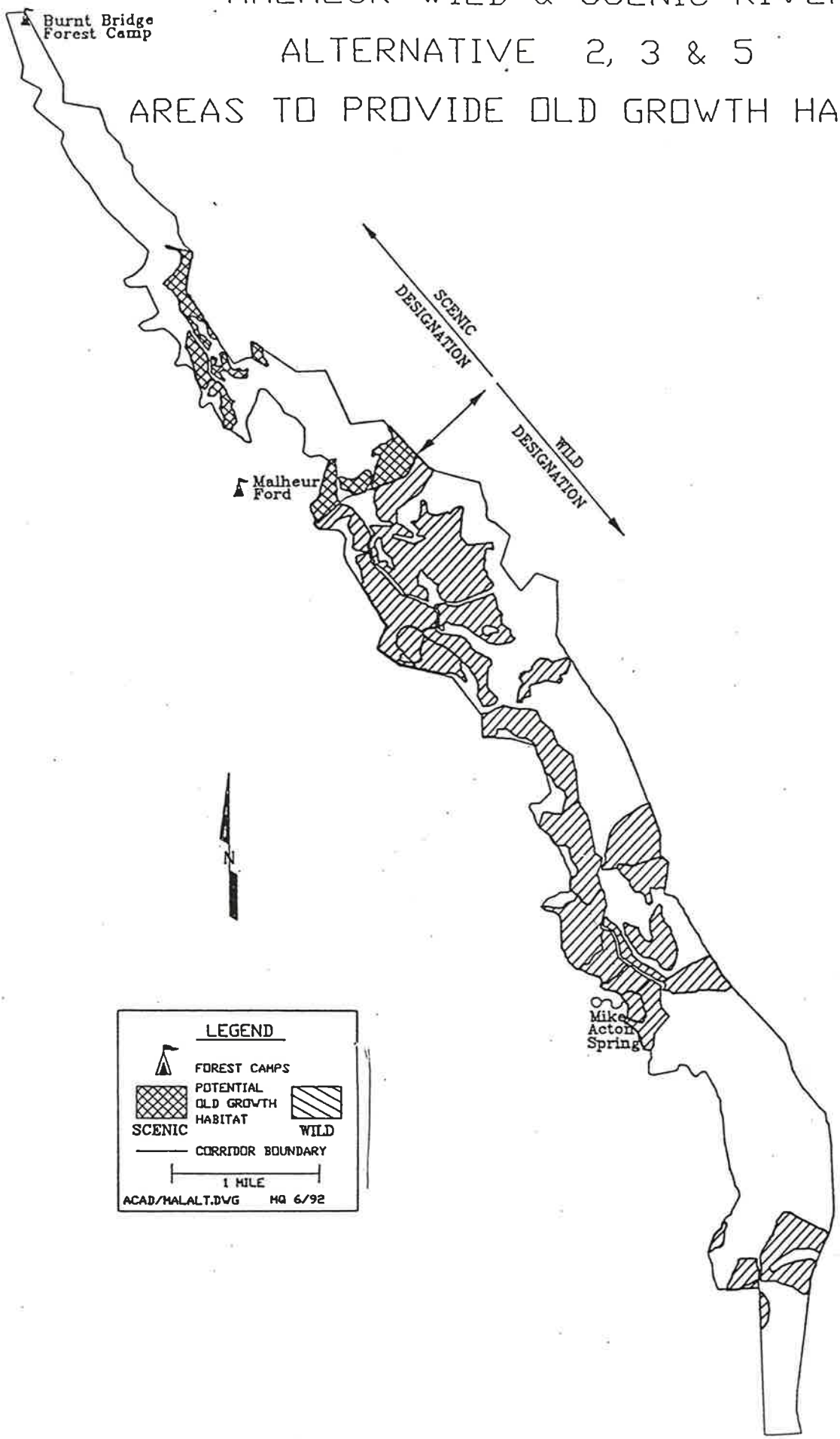
MALHEUR WILD & SCENIC RIVER

ALTERNATIVE 1 & 4

AREAS TO PROVIDE OLD GROWTH HABITAT



MALHEUR WILD & SCENIC RIVER
ALTERNATIVE 2, 3 & 5
AREAS TO PROVIDE OLD GROWTH HABITAT



Chapter Four

Environmental Consequences

This chapter forms the scientific and analytic basis for the comparison of alternatives. It is an assessment of the effects, both positive and negative, of implementing five alternatives for managing the wild and scenic river, with special emphasis on the outstandingly remarkable values. Short-term and long-term direct, indirect, and cumulative effects are disclosed. For some resources, no cumulative effects were identified.

Scenery

The scenery of the river corridor was considered by Congress to be an outstandingly remarkable value and was confirmed during resource assessments conducted by the interdisciplinary planning team. Visual quality must be protected and/or enhanced for the enjoyment of present and future generations. Protection and enhancement is provided by all alternatives and is given detailed analysis at varying levels in the document.

Effects Common to All Alternatives

Application of the preservation and/or retention visual quality objectives in all alternatives will result in a natural appearing river corridor. There will be a slightly altered appearance where the partial retention visual objective is applied.

All management activities will be conducted according to the concepts of landscape ecology and scenic resource planning, and will meet visual quality objectives. Projects will be designed to blend with the natural terrain and avoid stark contrast with the surrounding landscape.

Scheduled timber harvest is precluded in the wild segment of the river corridor. The effects of timber harvest in the scenic portions of the corridor varies by alternative.

The long-term effects of timber management on scenery could include road and landing construction and open skyline logging corridors. Short-term effects include removal of low vegetation, creation of logging slash, and exposed soil. The retention of large trees will have a positive visual effect.

Road construction creates visual contrast between exposed soils and surrounding vegetation.

Prescribed fire is a useful tool for creating or maintaining visually attractive vegetation and for removing residues. In the mixed conifer-pinegrass plant community, the colorful and distinct subclimax ponderosa pine can be maintained only by reducing competition from the more shade-tolerant white fir.

Although the visual effects of prescribed fire can be conspicuous and can reduce the quality of recreational experiences, these effects are usually short term. Fire activity helps create open, park-like stands of ponderosa pine, rejuvenates plants which require fire for regeneration, and increases opportunities to view wildflowers and wildlife.

Alternatives which propose to reserve the most old growth in the corridor will, in the short term, provide the most natural appearing settings. The alternatives which propose managing the most old growth in the corridor will also provide the least altered and most natural appearing setting in the future. Old growth is significant for scenic as well as wildlife values and was one of the scenic value components identified in the resource assessment.

The removal of vegetation and soil disturbances by livestock can occur in visually sensitive foreground areas along the river corridor.

Currently, mining does not occur in the river corridor. Mining operations could be performed in the scenic segment and outside the 1/4 mile withdrawal area in the wild segment. Mining operations could locally reduce the natural appearance of the river corridor. Removing vegetation and exposing soil, changing the stream channel profile, creating rock piles, and constructing roads would cause effects which remain evident for many years, even after rehabilitation efforts.

Alternative 1

The timber harvest level called for in this alternative would have the most negative effects on scenic values in the scenic segment of the corridor. While openings would be small, a change in the texture of vegetation may be visible. Through time, the old-growth character of stands will be changed as large trees are harvested. This change will be slow in order to meet the retention visual quality objective. Stands will continue to have some old-growth characteristics, but there will be a reduction in the number of large trees and snags.

There is a minor amount of lodgepole pine in the corridor. Predominantly lodgepole pine landscapes would become less natural in appearance, if patch cuts are used to combat forest pests. If landscapes are treated by prescribed fire, fire effects to the vegetation would also be evident.

Since salvage logging would not occur in the wild segment of the corridor and in some areas of the scenic segment, pockets of diseased or dead trees would provide wildlife viewing opportunities in the short term and natural vegetative patterns and textures in the long term. In the event of catastrophic damage, the scenic effects of removing pockets of diseased trees in the scenic segment through timber salvage could be widespread and long lasting, depending on location, scale, and site-specific project design.

Road construction would change natural appearance by reshaping landforms and creating contrasts between exposed soil and surrounding vegetation. Logging activities and bridges would distract from the surrounding scenery.

The construction of buildings and utility structures could create negative visual effects.

While there will be an improvement over current conditions, the effects of livestock grazing would still be evident. Effects would include trampled areas, reduction of streamside vegetation, manure, and other evidence of livestock grazing.

Alternative 2

The least alteration of natural appearance would occur because timber harvest is not scheduled under this alternative. The preservation visual quality objective will be applied to the entire river corridor.

There would be no timber salvage or other harvest activities in the corridor. Insect and disease activity will be evident, but will provide opportunities for viewing wildlife and observing natural vegetation succession.

Prescribed fire will produce positive and negative effects. Long-term, positive effects of prescribed fire include maintaining the old-growth character of timbered stands and stimulation of shrub and other vegetation. Negative visual effects such as charred logs and tree trunks and burned and blackened shrubs, small trees, and grasses, will be mitigated when possible, but will usually be evident. Through time, these effects will become less noticeable. Prescribed fire effects will be considered natural appearing when specific projects are analyzed.

The closure and obliteration of roads in the scenic segment would benefit visual quality.

Streamside vegetation would thrive because of the removal of livestock grazing. Taller grasses and more shrubs would appear, providing additional fall color along the river. The rate of recovery from the effects of current grazing would be faster than in other alternatives.

Alternative 3

Non-scheduled timber removal, to meet other resource objectives only, would have a lower potential for altering natural patterns and textures of vegetation in the scenic segment than Alternatives 1 and 4.

The retention visual quality objective could be relaxed to partial retention at specific sites to deal with forest health problems. The treatment of insect infested stands and establishment of young healthy stands would occur, when it is determined that this would have long-term, positive effects on outstandingly remarkable values. In these circumstances, for the next 5 to 10 years, partial retention would be permitted. Careful planning would be required to protect the outstandingly remarkable scenic value.

Activities could have long-term, positive and negative effects on the natural appearance of scenery.

The few landscapes dominated by lodgepole pine would become less natural in appearance because of the removal of dead and dying trees. When possible, some large trees will be retained.

Prescribed fire effects will be similar to those in Alternative 2 during the time that the visual quality objectives are relaxed to partial retention. The positive, indirect effects of maintaining old growth and stimulating plant growth will diminish through time, after the visual quality objectives return to preservation in the wild and retention in the scenic segments. Negative fire effects will also be less evident.

Salvage of dead and dying timber in the scenic segment could have the same negative effects as Alternative 1. There may be opportunities for rehabilitation and enhancement of scenic values through salvage of dead pockets of timber which would result in long-term, positive effects to scenery.

Temporary road construction north of Road 1675 would alter the natural appearance of the area by reshaping landforms and creating contrasts of exposed soil and the surrounding vegetation.

Effects of livestock grazing should be less than Alternative 1, but grazing management structures, such as fences, may be more evident.

Alternative 4

In the scenic segment, the effects of timber management and road construction would be the same as in Alternative 1 and the effects of timber salvage the same as Alternative 3.

Positive and negative fire effects will be the same as in Alternative 3.

The effects of livestock grazing would be less than Alternative 3 during the recreation season but would have high intensity, short-term impacts.

Alternative 5

Non-scheduled timber harvest to meet other resource objectives would have a limited potential to negatively change natural patterns and textures of vegetation. The effects of timber salvage would be the same as in Alternative 3.

Positive and negative fire effects will be the same as in Alternative 3.

Effects of livestock grazing would be less evident than in Alternative 4.

Cumulative Effects

Cumulatively, the reduction of a naturally appearing river corridor would be the largest in Alternative 1, least in Alternative 2. The cumulative effects ranking of the others, less change to more, would be 5, 3, and 4.

Some areas seen from the river in the northern part of the corridor are outside the designated river corridor. These seen areas are within the foreground and middleground of the Malheur River Visual Corridor. These areas will be protected, but some changes in the timbered stands are scheduled to occur. The scheduled changes will change the amount of naturalness; the areas will become more altered in appearance.

Fisheries

With the full implementation of best management practices and other established mitigation measures, the fisheries resource would be protected and enhanced by all of the management alternatives. The length of time required to achieve the desired future condition, however, would vary between alternatives. The size of investments for habitat improvement would also vary.

Some mitigation measures may be less than 100 percent effective. Therefore, as the amount of activity increases, the potential to adversely affect fisheries increases. This can increase the amount of time needed to reach the desired future condition.

Forest Plan direction for riparian areas (Management Area 3A) precludes scheduled timber harvest along Class 1 and 2 streams. Management Area 3A includes the floodplain or at least 100 feet on each side of the stream. Since the floodplain along substantial portions of the Malheur River is more than 100 feet wide on at least one side of the river, the area of no scheduled harvest will also be more than the minimum 100 feet wide in most areas.

Effects of livestock grazing described for each alternative below are contingent on revision of allotment management plans. If this does not occur, impacts on fish habitat would be as described in Alternative 1. Assumptions about the rate of recovery of riparian hardwoods (shrubs) are from the Forest Plan Fisheries Process Paper (Gritz, R. 1990).

Effects Common to All Alternatives

No timber harvest or road construction is proposed in the wild segment of the river. There would be no loss of shade from the removal of coniferous trees and no risk of additional sediment entering the stream from road construction. No change from existing conditions are predicted from these activities.

People are currently affecting fish habitat and, indirectly, fish populations. Trampled streamside vegetation in some areas, where concentrated use exists such as Malheur Ford, is limiting streambank structure for developing desirable overhanging banks.

Fire, wildfire or prescribed, can negatively and positively affect fish habitat. Stream shading can be reduced increasing water temperature in the summer and icing in the winter, a negative effect for fish.

Large woody material and ground cover can also be lost, depriving streams of structural elements and increasing sediment delivery. Large fires can affect the timing of runoff and increase the size of floods. Large fires resulting from an accumulation of excessive fuels produced by fire suppression pose the greatest threat to fish habitat.

Low intensity, prescribed burning can stimulate riparian hardwood sprouting and help prevent catastrophic fires by reducing fuel loading. Prescribed fire is allowed in all five management alternatives.

Burning to improve forage could benefit fish habitat by increasing the vigor of riparian vegetation. If increased vegetative ground cover occurs, it may improve water infiltration into the soil and reduce sedimentation. There is a small risk of impacts to water if a storm occurs immediately after a high intensity burn. Ash entering the water could produce turbidity and affect water chemistry.

All alternatives call for improving riparian vegetation, which will improve beaver habitat. Beaver dams, which can be expected in the upper reaches of the river just below Logan Valley and in the braided channel areas, make excellent rearing habitat for trout.

Before implementation, any structural fisheries improvements must be analyzed for effects on the free flowing conditions of the river.

Alternative 1

Meeting Forest Plan standards for livestock grazing in riparian areas would reduce grazing on sites identified as "unsatisfactory." Unsatisfactory sites are usually areas where woody riparian vegetation is absent or present in levels significantly below site potential and places where unstable banks are evident.

Within the river corridor, these conditions usually occur in non-forested sites (meadows) and in relatively open ponderosa pine stands.

The objective of these standards is to produce satisfactory conditions in about 30 years without precluding all livestock grazing. The complete rehabilitation of fish habitat will not usually be realized within 30 years. Overhanging vegetation and stable undercut banks will require more time to develop. A deeper and narrower river channel can be expected to develop through time.

Some roading and timber harvest would occur in the scenic portion of the corridor, but there would be no harvest within the riparian area. A retention visual quality objective in the foreground and partial retention in the middleground, as seen from the river, would reduce the amount of timber removed at each entry. Given these limitations and an effort to minimize timber harvest road construction, the risk to water quality and downstream fish habitat would be quite small.

Harvest might slightly reduce the amount of large woody material naturally delivered into the river. The greatest potential for sediment delivery, associated with timber management, to streams would be from road construction and maintenance.

Alternative 1 would permit fish habitat improvement projects; however, limited road access to the river, visual quality constraints, and the size and power of the river limit options for improvement projects. Grazing pressure on browse and forage could be

reduced by fencing and planting riparian hardwoods to accelerate riparian recovery. Other measures could include placing whole trees in the river (probably using helicopters) and vegetative riprap on streambanks. Vegetative riprap would stabilize banks, limit livestock grazing in the immediate area, and reduce wildlife use of shrubs.

To meet visual quality objectives, projects would be limited and designed to appear natural. To protect the free flowing conditions of the river, few engineered structures like weirs can be constructed.

The preservation visual quality objective applies in the wild segment of the river corridor and many fish habitat improvements would not be allowed. The desirable recruitment of large woody debris (logs) would be the result of natural processes, and would occur gradually with little change in the immediate future. In the lower 5 miles of the river corridor, where there are only about 65 pieces of in-channel large woody debris per mile, it would take longer to achieve the desired condition of 150 pieces per mile.

With moderate investments in range management and fish habitat improvements, Alternative 1 could be expected to achieve the desired future condition for fish in 30 to 50 years. This duration could be shortened with increased investments in habitat improvement and more intensive livestock management. In the scenic segment, the goal for in-channel large woody material would be met in about 20 years.

Alternative 2

The bank stability and vegetation components of the desired future condition would be most rapidly achieved in this alternative. With the removal of livestock from the corridor and continued control of big game populations, riparian vegetation could be expected to return to a satisfactory condition in less than 20 years. In some portions of the corridor, satisfactory conditions could occur in less than 10 years. The desired future condition of vegetation for fish habitat would be fully achieved in less than 30 years.

Engineered "hard" fish habitat improvements would not occur but, because livestock would be fenced out of the corridor, riparian and aquatic habitat conditions will improve conditions for fish.

Fish habitat improvements which are natural in appearance and would not be evident to visitors in 1 or 2 years could occur in the wild portion of the river. The most important fish habitat improvement would be the in-channel placement of trees (large woody debris) to provide pool habitat. This alternative prohibits the removal of large woody debris from the river. Large logs in the river create safety hazards for boaters and makes floating the river more hazardous. Recreationists tend to remove these large logs. Prohibiting the removal of large woody debris will result in better fish habitat over time, as pools and cover increase.

In addition to the removal of livestock, the absence of timber harvest and road and trail construction would benefit fish habitat. The desired future condition for water quality, bank stability, in-channel large woody material, and streambank vegetation would be met more rapidly than any of the other alternatives.

Alternative 3

The effects of livestock management would be the same as those in Alternative 1 resulting in a moderate riparian recovery and improvement rate.

As with Alternative 2, there would be no scheduled timber harvest in the river corridor but limited tree removal could occur in the scenic segment. In response to catastrophic events, limited tree removal could occur for salvage or forest health reasons. The magnitude of impacts from unscheduled timber harvest could vary widely, depending on the events which trigger harvest. Any unscheduled harvest would require site-specific project analysis.

The construction and use of recreation facilities allowed in this alternative create a potential for adverse impacts on fish habitat similar to the effects of timber management in Alternative 1. Both alternatives involve road and trail construction and ground disturbance but less would occur than in Alternative 1.

Habitat improvement projects similar to those allowed in Alternative 1 for the scenic segment would occur throughout the river corridor. These projects would be natural in appearance. Shrub planting, placement of large wood in-channel, and limited vegetative riprap would appear to be natural within 1 or 2 years after installation. Fences would general-

ly not be visible from the river. Removal of logs from the river, for safety reasons, may reduce fish habitat created by the logs.

The desired future condition for streambank stability and vegetation would be achieved in 30 to 50 years; large woody debris objectives in 20 years.

Alternative 4

Riparian vegetation could recover rapidly in this alternative if intensive livestock management is implemented by the permittees. Intensive grazing will result in short term but heavy impacts to forage. Stimulation of vegetation growth is expected. This alternative would achieve the desired future condition for streambank stability and vegetation more rapidly than Alternatives 1, 3, and 5, but more slowly than Alternative 2. The grazing management strategy may cost more to implement and may increase requirements for range permittees.

Potential effects of timber management would be similar to those in Alternative 1. The effects of fish habitat improvement projects and recreation would be similar to Alternative 3.

Alternative 5

Livestock management in the scenic segment of the river corridor would be the same as in Alternatives 1 and 3. The forage utilization level would be reduced in the wild river segment from a maximum of 45 percent utilization to 35 percent utilization. The reduction in forage utilization in the wild segment will increase the rate of riparian recovery over Alternatives 1 and 3, but the recovery rate will be less rapid than Alternatives 2 or 4.

As in Alternative 2, there would be no scheduled timber harvest or road construction in the corridor, which will reduce the potential for sediment entering the river from these sources.

The limited renovation of existing recreation facilities would pose less threat to fish habitat than alternatives calling for new developments.

Fish habitat improvements would be the same as in Alternatives 2, 3, and 4.

This alternative would achieve the desired future condition for fish habitat more rapidly than all alternatives except Alternative 2.

Wildlife

Wildlife habitat was assessed as an outstandingly remarkable value. All alternatives provide for varying levels of protection and enhancement of wildlife habitat.

Effects Common to All Alternatives

Compliance with Forest Plan grazing standards for riparian areas will improve the vigor and composition of streamside vegetation. Over time, stream shading will increase and streambanks will become more stabilized by root systems. Populations of songbirds and small mammals will respond positively to this increase in feeding and nesting habitat.

The potential for bald eagle winter roosts in the corridor may be monitored in all alternatives.

Alternative 1

Timber harvest in the scenic segment would negatively impact wildlife habitat. Timber harvest would decrease habitat for cavity nesters by removing some snags and potential snags. Timber harvest would also reduce the amount and quality of cover for big game. Big game use patterns may change, and a reduction in corridor use may occur in areas of timber harvest. Harvest would be at low levels and impacts would be local. Overall populations could decrease slightly.

The current level of recreation may cause some species to avoid campsites and trails. The small amount of old-growth habitat available in the scenic segment would decrease and could reduce occupancy of the corridor by species which are associated with old growth.

Disturbance associated with timber harvest in the scenic segment and increased recreation in both segments may cause mountain lion and wolverine to avoid the corridor.

The connectivity of the corridor will continue in the wild segment, but may become less viable in the

scenic segment as habitat conditions change over time.

Cumulatively, some wildlife populations may be reduced in the scenic section; this would not occur in the wild segment.

Alternative 2

Conditions would remain much as they are today, with a reduction of vehicle access. Riparian habitat would improve at areas previously disturbed by fords, campers arriving by car, and cattle grazing and trailing along streambanks. Improvement would be slow, however, because soil in these areas is compacted.

Old growth would be maintained at current levels and could be improved with prescribed burning. The timing of any prescribed burning would consider the possible use of the corridor by bald eagles.

Over time, habitat for cavity nesting species would be increased in the scenic segment as trees die. Animals sensitive to human disturbance, such as mountain lion, would be more likely to increase their use of the corridor as recreation is reduced and roads are obliterated.

An inability to perform structural wildlife habitat improvement projects could have a negative effect over time.

Connectivity provided by the corridor will remain in both segments.

Alternative 3

The installation of nest boxes or blinds near campsites would improve opportunities to view wildlife.

Connectivity will be affected as in Alternative 1.

An increased level of recreational visitation would cause species sensitive to human disturbance to avoid camping and hiking areas. Increased recreational use may also negatively affect riparian habitat at and around popular fishing areas. With the continued removal of bank vegetation, water quality and fish habitat will probably be degraded.

Alternative 4

Big game cover and old-growth habitat would be reduced by timber harvest in the scenic segment of the river. This will change use patterns and limit habitat for old-growth associated species.

Because the harvest level would be low, these impacts would be small. Managing only 33 acres of old growth would discourage occupancy of the scenic segment by pileated woodpeckers except in the old-growth area. The 33 acres is contiguous with old growth in the wild segment.

Alternative 5

Wildlife habitat would be best protected and enhanced in this alternative.

Positive habitat effects would be similar to those in Alternative 2 except that 1,350 acres of old-growth habitat would be actively managed and some younger stands could develop into old growth over time.

Connectivity of the corridor would be maintained as in Alternative 2.

Populations of cavity nesting species could increase with an increase in snag densities. Potential bald eagle roosting and nesting habitat would increase.

Watershed

All alternatives would implement watershed protection measures contained in the Forest Plan. Additional constraints on ground and vegetation disturbing activities are included in the alternatives to satisfy visual, wildlife, and recreational concerns. Because of these constraints, it is not likely that any of these alternatives will produce serious adverse impacts on water quality or riparian and aquatic habitat.

Water quantity and quality are affected by agricultural practices on the Forest and on adjacent private land above the designated segments of the river. Water diversions, flood irrigation, and heavy livestock grazing produce effects as described in Chapter Two. Without more analysis, the effects of flood irrigation in Logan Valley are difficult to quanti-

fy. While water quantity in the river is directly decreased by diversions from tributary streams, the possibility exists that these diversions and the flood irrigation serves to recharge the groundwater supply in the valley. This may have a positive effect on late-season flow into the river, because the captured water is slowly released from the relatively shallow aquifer.

Agricultural practices in Logan Valley are expected to continue at existing levels. Otherwise, conditions in the watershed can be expected to gradually improve over existing conditions under all alternatives. The rate of improvement will be slow because the watershed is already in relatively good condition and improvement projects will be limited by the difficult access.

Alternatives 3 and 4 are basically the same as Alternative 1. Forest Plan standards for timber, recreation, and livestock management in riparian areas; the replacement of large woody debris; and the re-establishment of hardwoods would be implemented. This would move the scenic river corridor toward the desired condition for streamside shading, woody debris, and water quality. Achieving the desired future condition for water quality involves reductions in sediment, turbidity, temperature, and bacterial contaminants.

Reliance on only natural processes in Alternative 2 would delay achievement of the large woody debris component of the desired condition. Removal of cattle from the corridor and the absence of timber harvest would have a slight positive effect on water quality. Much of the corridor is inaccessible to livestock.

The effects of Alternative 5 would be similar to those in Alternative 2, except large woody debris could be placed in the river channel.

All alternatives would comply with instream flow levels for which the Oregon Department of Fish and Wildlife has obtained instream use rights. Free flowing conditions would be maintained based on these rights.

Most changes in Malheur Wild and Scenic River water quality will be attributable to activities in the tributary subwatersheds outside the designated corridor. As large areas that were burned in 1990 and 1991 revegetate, water temperatures and, to a lesser extent, sediment and turbidity levels in the Malheur River will decrease.

Cumulative Effects

Timber harvest, road construction, and other activities are at historic highs in many adjacent subwatersheds. The effects of these activities are expected to diminish with the implementation of Forest Plan standards in all alternatives. Planning for future activities in these areas will consider downstream Wild and Scenic River values.

Timber

Effects Common to Alternatives Calling for Timber Management in the Scenic Segment of the Corridor

Forest Plan standards for timber management impose numerous requirements on timber management.

Openings created by timber harvest in areas seen as foreground will be limited to 2 acres in size. This size limitation will benefit fish by reducing sediment and benefit big game by retaining cover.

The objective of silvicultural prescriptions would be to enhance outstandingly remarkable values. Treatments will emphasize long rotations to grow large diameter trees. Effects can include disturbance to ground vegetation, reduction of stand densities, and changes in available cover and forage. These effects are expected to be short term and the overall condition of vegetation should slowly improve.

Treatment goals would be to increase species and structural diversity. To meet visual quality objectives, multiple treatments over time will be required to reach the desired future condition. The repeated occurrences of timber harvest and prescribed burning increases the potential for soil compaction, disturbance to wildlife, and conflict with recreation.

The riparian zone, where timber harvest is not scheduled, would protect streamside values in all alternatives. Soil disturbance from timber harvest can generally be mitigated.

Effects Common to All Alternatives In the Wild Segment

Prescribed fire would be the only silvicultural practice common to all alternatives. Timber harvest would not occur, but incidental cutting of trees for safety or minor habitat and scenic improvements will be allowed. The harvest of insect damaged stands will not occur. The health of timber stands in this part of the corridor may continue to decline due to increased insect and disease activity. Scenic and wildlife values could be negatively affected as changes in stand structure and composition occur.

Alternative 1

Scenic Segment

There would be 439 acres suitable for timber management in this alternative. Harvest levels would be maintained at or near those projected in the Forest Plan. An estimated 297 MBF (thousand board feet) per decade could contribute to the Forest's annual allowable sale quantity (ASQ).

The gradual reduction of density of forest stands would provide some increase in forage production. Stocking level control through stand thinning would encourage increased vigor and growth rates, reducing the threat of insects and disease occurrence. Large diameter trees could develop more rapidly and provide greater diversity over time than in the no harvest alternatives.

Alternative 2

Scenic Segment

Timber harvest would not occur (economic effects are discussed below). Effects mentioned in the description of the wild segment above could occur. Nature rather than man will control future forest health conditions.

Alternative 3

Scenic Segment

Effects would be similar to those in Alternative 2, except unscheduled salvage harvesting would be permitted. Economic effects would be marginal.

Wild Segment

Though incidental cutting of trees, to enhance scenery or create wildlife habitat, may occur in this portion of the corridor, the number of trees cut, if any, would be small. This incidental cutting will not be expected to significantly improve forest health. Even with prescribed fire as a silvicultural tool, future forest health conditions will be more dependent on nature than man's actions.

Alternative 4

Scenic Segment

The same as Alternative 1.

Alternative 5

Scenic Segment

The same as Alternative 3.

Sensitive Plants

Potential habitats for sensitive plants were surveyed in 1991. No sensitive plant populations have been located in the river corridor. However, the corridor does contain areas where the potential habitats for sensitive plants exist. Sensitive plants may inhabit the corridor, but are yet undiscovered. Some areas may require further survey and analysis of site-specific project effects when specific projects are actually proposed.

Alternative 1

Development of recreation facilities, range improvements, timber management, mineral entry, road construction or improvements, trail construction, and prescribed fire could affect potential sensitive plant populations and habitats. Depending upon the species and life requirements, some populations and/or their habitats may be positively or negatively affected by disturbance. Surveys will occur before disturbance activities are allowed. Every proposed project is required to be analyzed for effects to sensitive plants.

Alternative 2

There would be no impacts to sensitive plants or their habitats from scheduled timber harvest and grazing. Fence construction to exclude cattle from the river corridor could pose a small risk to sensitive plants and/or their habitats. Road obliteration and small, prescribed fires would have negligible effects.

Alternative 3

Prescribed fire, fence construction, recreation facility development, trail and trailhead construction, timber management, and road construction could affect sensitive plants as described in Alternative 1.

Alternative 4

Actions affecting potential sensitive plants and/or their habitats include prescribed fire, fence construction, timber management, and trail construction as described in Alternative 1.

Alternative 5

This alternative allows for current levels of recreation but would reduce grazing and timber harvest. Prescribed fire, fence construction, and unscheduled timber harvest could affect sensitive plants as described in Alternative 1.

Summary

Alternative 3 would pose the greatest threat to potential sensitive plant populations and Alternative 2 the least. Alternative 1 ranks behind Alternative 3 and Alternatives 4 and 5 pose approximately equal risks behind Alternative 1. Timber management would produce more ground disturbance than other activities. Prescribed fire may affect a substantial number of acres but produces less disturbance and may, in some instances, enhance sensitive plants and/or their habitats, as many plant species thrive in disturbed areas and evolved under re-occurring fire cycles.

Range

Effects Common to All Alternatives

As range improvements are completed fewer unpermitted cattle will drift into the river corridor. The redistribution of use may create problems on other portions of the involved allotments if forage is already fully obligated.

Except in Alternative 2, evidence of grazing livestock would continue to be apparent. There would be fewer direct encounters between visitors and cattle in all alternatives as Forest Plan utilization levels are enforced.

Grazing by big game may increase as the surrounding forest is more intensively managed and the corridor becomes higher quality habitat (more forage and an absence of disturbance) than currently exists.

Funding will be required for additional range administration and improvements. The Forest is in the last year of full implementation of the Forest Plan grazing utilization standards. The effectiveness of improved management practices in riparian zone recovery on the Forest is dependent upon forage utilization standards being met.

The use of prescribed fire would create more and better forage for wildlife and livestock. This could encourage better distribution of foraging animals and a reduction of grazing on riparian shrubs.

Alternative 1

Currently occurring adverse effects include damage to the edges of trails by traveling cattle. The construction of 5 additional miles of trail would increase access to the river for cattle and increase conflict with recreation visitors.

Riparian plant communities would improve; the willow component would increase in number and height and sedges would increase in composition. Willow/kentucky bluegrass will change to Willow/wooly sedge in the water saturated zone immediately adjacent to streams. The portion of the riparian zone not saturated for extended periods will remain willow/kentucky bluegrass and its condition will improve.

To meet Forest Plan standards, permittees would be required to take a more active management approach towards their livestock. Even if cattle meet utilizations standards, wildlife grazing and recreation may still result in excessive removal of forage in some heavy use areas.

Alternative 2

This alternative requires exclusion of livestock from the designated river corridor; however, range permittees must agree to livestock exclusion.

Without fencing portions of the corridor, it is not feasible to implement this alternative without excluding cattle from the entire grazing units (pastures) because they include areas within the river corridor. The option of herding by riders is too expensive to be seriously considered. Responsibility for maintaining the required fences for livestock exclusion would be established on a case-by-case basis.

Vegetation would move toward the next higher seral stage at an accelerated rate. Mountain alder sites would have a higher composition of alders (both young shrubs and taller shrubs). Understory vegetation is determined largely by which species first colonized the site. Species dominance may depend on which species can tolerate periodic flooding and dense alder shade. Willow/kentucky bluegrass sites will have more young willows. Kentucky bluegrass will be vigorous.

From a forage standpoint, the range trend may move downward if vigor is not maintained by other means such as fire. If old plant material is allowed to accumulate, some grasses and other plants may become decadent and eventually die out.

Over time, more vegetation could colonize the river banks and help narrow the channel.

In addition to fencing, numerous water developments may need to be installed to replace water previously provided by the Malheur River.

The estimated loss of animal months (AM's) of grazing by allotment would be:

Bluebucket Allotment - 40
Star Glade Allotment - 12
Dollar Basin Allotment - 30

Alternative 3

Range and riparian vegetation conditions would improve and move toward the next seral stage. More riparian shrubs would grow above the grasses and Kentucky bluegrass would increase in vigor. For a time, this could retard the increase of native riparian grass species.

Depending on the level of grazing by big game, these changes could occur more rapidly than in Alternative 1.

There would be no change in grazing capacity of the river corridor.

An increase in recreation visitors would result in more conflict with livestock than in Alternative 1. New trails and improved road access will increase travel into the corridor by livestock as well as campers, hikers, and anglers.

Alternative 4

Because of an increase in recreation, the trend of riparian vegetation toward the next seral stage may be slower than in Alternative 1 along portions of the river where use is highest. This would be caused by increased trampling of vegetation by visitors and, possibly, pack animals.

If a proposed new campground is built, a minor amount of forage would be lost; however, this should not result in the need for required coordination to prevent overgrazing elsewhere.

If intensive grazing management was implemented, changes in capacity would be determined by conditions after several years of monitoring. It is not anticipated that capacity would change, but as range and riparian condition improves, capacity may indeed increase. Intensive livestock management would require more monitoring and active management by the range permittees.

As in Alternative 3, cattle would use the increased road and trail access and the new trail to enter the river corridor, producing conflict. Elsewhere, how-

ever, structures would reduce livestock use of the corridor and overall conflict would be less.

Timber harvest can cause livestock to concentrate in small areas; coordination between range managers and timber presale and sale administrators would be required.

An increase in visitors accompanied by pack and saddle stock may require recreation livestock use permits. There may also be an increase in the introduction of noxious weeds.

Alternative 5

Effects in the scenic segment of the corridor would be similar to those in Alternative 1.

In the wild river segment, movement of riparian vegetation toward the next higher seral stage would be more rapid than in Alternatives 1 and 3 because the maximum forage utilization would be reduced to 35 percent.

This would impose additional responsibilities on the Bluebucket Allotment permittees to manage cattle in a manner which meets the reduced utilization level. Permitted use within the river corridor will decrease from 40 to 34 animal unit months on this allotment.

Range improvements would be similar to those in Alternative 4.

There would be no new trail access or recreation developments. There would be fewer cattle in the corridor because of utilization standards and improvements; conflicts with recreation visitors would decline.

As the lands adjacent to the corridor are more intensively managed there may be increased wildlife grazing in the corridor. Big game may also use the corridor for escapement, particularly during high use periods on adjacent lands (i.e. hunting season). With the possible increase in wildlife grazing, shrubs may take longer to increase in vigor and height. If recreation use within the corridor increases significantly, the year-long use of the corridor by big game will likely diminish.

Cumulative Effects

No cumulative effects of grazing were identified.

Fire

Effects Common to All Alternatives

Prescribed fire will be used to improve wildlife habitat and visual quality. Fire will be re-introduced into areas where it was historically suppressed. Fire will help to reduce the buildup of fuels and to re-establish the natural mix of tree species. It is anticipated that natural fire (i.e. started by lightning) will eventually play a more natural role in the river corridor.

The use of prescribed fire is emphasized in Alternative 2, but is allowed in all alternatives.

Fire Suppression

Prescribed fire would be used to reduce the possibility of catastrophic wildfire, which is increasing due to 8 years of drought and increased fuel loadings within the corridor.

Appropriate suppression methods are determined in the application of a control strategy. Effects of fire suppression can be short term and long term. Short-term effects are disturbances to wildlife by the presence of firefighters and the attendant noise from mechanized equipment and aircraft. Fire retardant is visible, but is usually washed away from surfaces within 1 year of application.

Long-term effects from clearing helispots, cutting snags and hazard trees, and constructing firelines can be mitigated in most cases.

Closing roads and trails could hamper initial attack response time, increasing the probability of wildfires becoming larger. Constructing additional roads and trails may improve initial attack response times in some areas of the corridor.

Air Quality

Prescribed fire produces smoke, which contains components which contribute to air pollution. The main component is particulate matter (dust and ash), but complex hydrocarbons, carbon dioxide,

carbon monoxide, and other compounds are also produced.

Some of these compounds are known carcinogens; agents which can cause cancer. For some unusually sensitive individuals, including people with chronic obstructive lung disease, exposure to smoke in minor amounts can be harmful. The magnitude of the problem is determined by the duration of exposure and concentration of the smoke. Current research indicates that exposure to smoke by healthy individuals creates only short-term effects.

Smoke from prescribed fire will have short-term effects on air quality in the area within and surrounding the river corridor. Recreationists may be negatively affected, if they are present during prescribed burns. Visibility could diminish when smoke is in the air, which would affect the ability to see scenery within the corridor.

Prescribed burns are likely to be implemented in the spring and fall. Effects of smoke on visibility can be mitigated through burning at times when atmospheric conditions are such that the smoke is lifted from the surface into higher levels of the atmosphere and dissipated through mixing.

Prescribed burning is conducted in accordance with the State of Oregon Implementation Plan for Smoke Management. Prescribed burning and other activities which affect vegetation are performed in compliance with the Region 6 Final Environmental Impact Statement on Managing Competing and Unwanted Vegetation and the associated Mediated Agreement.

Cumulative Effects

There are no known long-term cumulative effects of adding smoke into the atmosphere from prescribed fire. When many prescribed fires are burning in close proximity, the combined smoke can have cumulative effects on visibility throughout the airshed.

Cultural Resources

The historic value of the splash dam and associated sites within the corridor were determined to be outstandingly remarkable values in the resource assessment completed in January 1992.

Effects Common to All Alternatives

Activities which disturb the most ground have the greatest potential to affect cultural resources. Activities such as prescribed fire can affect cultural resources on the surface. Activities such as road and trail construction can affect cultural resources above and below the surface.

Compliance with cultural resource laws and regulations must be met before any ground disturbing activities begin. In some cases, this will require additional cultural resource survey work.

All alternatives provide for interpretation of cultural resources. The historic splash dam site and the old logging camps provide exceptional interpretation opportunities within the corridor.

All sites considered eligible for the National Register of Historic Places will be avoided and protected during any management activity. Management activities include timber harvest, recreation, road construction, and watershed, range, and wildlife habitat improvement projects.

If a site is located during management activities, work will cease until an archeologist inspects the site and recommends mitigation measures.

Alternatives 5, 3, 4, and 1, increasingly, have the greatest potential for negative impacts to cultural resources, as more ground disturbing activities are allowed in these alternatives.

Alternative 2 has the least potential to affect cultural resources because it allows the fewest ground disturbing activities.

Recreation

The recreation opportunities present in the corridor are described in Chapter Two. Recreation was determined not to be an outstandingly remarkable value for the river corridor, but future recreation use and recreation development is a significant issue to be addressed.

The Forest Plan recommends the semi-primitive, non-motorized designation on the Recreation Opportunity Spectrum (ROS) for scenic and wild river

corridors. Some motorized use is permitted in scenic segments.

Alternative 1

The existing recreation setting for the corridor is Roaded Natural where roads enter and cross the river. The number of interactions between users of the corridor would increase in and around Malheur Ford and Burnt Bridge Forest Camps as more recreationists come to the area. There would continue to be conflicts between livestock and dispersed campers, who would not be limited or restricted in numbers.

The physical effects in areas of concentrated recreation use where grazing is also occurring would be an increase in trampled ground, fire rings, grazed vegetation, cow manure, and river bank erosion.

Timber harvest would have little or no effect on dispersed campers because the harvests would mostly occur in different portions of the corridor than where dispersed camping is concentrated. Harvest activities, new road construction, prescribed fire, and range management activities would affect scenery and wildlife viewing opportunities for cross-country hikers. In the wild river segment, hikers would encounter livestock or evidence of range management.

Use of the river for boating could increase slightly but factors currently limiting this activity would not change.

An increase in access from the construction of 5 miles of new trail would increase fishing and dispersed camping in the scenic portion of the river. New trail construction would also be used by livestock, which would produce additional conflict.

The capacity of the two Forest Camps would remain the same, accommodating 15 people at one time (PAOT's). The greater number of people visiting this portion of the corridor would disappoint people desiring solitude and more pristine conditions. People expecting this experience would not be disappointed in the wild segment, because the difficulty of access will limit use.

The construction of a snowmobile bridge at Burnt Bridge Forest Camp would encourage snowmobile use.

Road access to the river would remain the same and roads currently causing erosion problems could be closed or improved.

Cumulative Effects

Opportunities to hike cross-country in the area without encountering human disturbance would decline. An increased number of dispersed camping sites could increase sedimentation. More fishing could reduce the frequency of catch and the quality of the experience.

Alternative 2

Measures called for in this alternative would move the corridor toward the more primitive end of the ROS.

Because of the absence of timber management and livestock grazing and an increase in road closures, interactions between visitors would be minimal. There may be an overall decrease in the number of people using the corridor, including fall hunters.

Anglers may continue to use dispersed camping sites at Malheur Ford. Generally, sites which have become void of vegetation would recover. Hazards associated with boating in the Malheur River would increase.

The removal of recreational facilities would force some recreation users to go elsewhere and might result in the construction of illegal facilities.

Because of reduced access and lower level maintenance, hiking on the Malheur River Trail could be reduced. There would, however, be no conflicts with livestock.

An increase in illegal use of the trail system by vehicles could occur, requiring the attention of enforcement officers.

Cumulative Effects

The condition of the corridor would become more "primitive" over time. The number of people using the corridor will likely decline.

Alternative 3

New trails, upgraded Forest Camp facilities, and improved road access would increase visitation and interaction between users. The Burnt Bridge camp may be replaced with a campground, either within or outside the river corridor. This campground would provide 25 PAOT's of developed recreation opportunity.

The new trail construction would disperse visitors from the two major access points, Malheur Ford and Burnt Bridge Forest Camps.

People who hike into the upland portion of the scenic river system would encounter livestock and evidence of timber harvest. New harvest activities would be limited, however, and the effects would be less than in Alternative 1. There would be an increase in fences, which could impede cross-country travelers.

In the wild portion of the corridor, hikers would encounter livestock or evidence of grazing.

Boating would improve in the northern portion of the river because of facilities planned at Burnt Bridge Forest Camp, better access, and the removal of woody material in the river.

Five miles of new trail and a trailhead at Malheur Ford would increase the number of people using the river. This would produce new dispersed camps and encourage additional fishing. Fencing along the corridor boundary would reduce conflict with livestock.

Cumulative Effects

Same as Alternative 1.

Alternative 4

Improvement of road access, motorized vehicles on the new trail north of Malheur Ford Forest Camp, and additional road access would increase visitation and interactions between visitors. It would also require additional signing to separate the different modes of travel.

Better access and developments would attract people to the Burnt Bridge and Malheur Ford Forest Camps. A prohibition against removing large woody debris from the river would exempt logs removed for boating safety. This could increase the popularity of the segment from Burnt Bridge to Malheur Ford and boating use could increase.

In addition to effects described in Alternative 3, recreational developments would provide more conveniences, attracting people who favor this kind of outdoor experience. The Forest Camp capacity will remain at 15 PAOT's. The construction of a new campground along the west rim with 25 PAOT's and a new trail, near the new campground, from the rim to the river will increase the recreation use in the wild segment. Increased access into the wild river segment would result in less primitive recreational opportunities.

Motorized vehicles on portions of the trail system could result in conflict with anglers, hikers, cyclists, and others; could impact meadows adjacent to the trail; and could lead to illegal use of other trails.

Cumulative Effects

Similar to Alternative 1.

Alternative 5

This alternative would result in higher quality recreation experiences but provided at levels which currently exist. User satisfaction should increase, but the number of recreation developments will not change.

Because of limited timber harvest and no new road construction, effects on recreation would be less than in Alternative 1.

These elements and an increase in range management structures would make unobstructed hiking and photography more likely. There would still be evidence of range management in the wild river segment. There will be fewer conflicts between recreationists and cattle in the wild segment of the corridor.

The Forest Camp recreation capacity of the river corridor will be unchanged. Use of the Malheur River Trail may decline slightly because of lower maintenance levels. Fences would be visible from the trail. There could be conflict between hikers, horseback riders, and mountain bike riders.

Cumulative Effects

Initially, visitation may decline but the area may begin to attract people seeking a slightly more primitive recreational experience than currently exists.

Geology

The geologic value of the river corridor was determined to be an outstandingly remarkable value in the resource assessment completed in January 1992.

None of the alternatives permit activities which will have significant impacts to geology with the exception of mining. Mining could create major changes to the appearance of the geologic formations in the scenic segment of the corridor and outside the 1/4 mile minerals withdrawal area in the wild segment of the corridor. Some adverse effects of mining may be mitigated through approved Plans of Operations. Mineral potential in the corridor is believed to be low, but little data exists.

Socio-Economic Effects

Socio-economic effects of the alternatives on local communities were evaluated using the following three criteria.

1. Timber and grazing related employment. This includes jobs in ranching, logging, wood products, and related forest work such as tree planting, fence construction, and prescribed burning.

2. Forest Service payments to Grant and Harney Counties. The Forest Service returns 25 percent of gross timber receipts and grazing fees to the counties where they were generated.

3. Recreational opportunities. Recreational opportunities for camping, hunting, fishing, hiking, viewing scenery, and other activities are an important part of the social environment.

Alternative 1

There would be no change in timber or grazing related employment. Payments to counties would be unchanged. Recreational opportunities would increase slightly.

Alternative 2

There would be no timber or grazing related employment and no payments to counties from timber receipts or grazing fees. Recreational opportunities would decrease slightly.

Alternative 3

There would be no change in timber or grazing related employment and payments to counties would remain the same. Recreational opportunities would increase slightly.

Alternative 4

There would be a slight decrease in timber and grazing related employment and payments to counties. Recreational opportunities would increase.

Alternative 5

There would be a slight decrease in timber and grazing related employment. Payments to counties would decrease more than in Alternative 4. Recreational opportunities would remain about the same as current levels.

Wetlands and Floodplains

None of the alternatives will have significant adverse effects on floodplains and wetlands.

Other Required Disclosures

All alternatives meet applicable national laws and executive orders with specific direction concerning Wild and Scenic Rivers, National Forest Land Management, and timber harvest. Subjects specifically included are cultural resources, water quality, visual quality, timber regeneration, air quality, soil productivity, free flowing river conditions, and threatened, endangered, and sensitive plant and animal species. None of the alternatives would have any significant adverse effects on these resources and activities.

For all alternatives, irreversible and irretrievable commitments of resources would not exceed those discussed in the Final Environmental Impact Statement for the Malheur National Forest Land and Resource Management Plan.

There are no prime farmlands within or adjacent to the river corridor. All alternatives are in keeping with the intent of Secretary of Agriculture Memorandum 1827 for prime rangeland, farmland, and forestland.

Until research resolves major scientific uncertainties, evaluation of effects of global climate change here would be speculative. The Department of Agriculture and Forest Service are conducting extensive research on global climate change and its implications for forest resource management activities. Current Forest Service policy holds that National Environmental Policy Act (NEPA) disclosure documents at the programmatic or project levels are not appropriate vehicles for addressing possible change in global climate.

American Indian rights, including those covered under the American Indian Religious Freedom Act, would not be affected by activities considered in this environmental assessment. Socio-economic effects on American Indians, other minorities, and women would be the same as effects on the general population.

Alternative 1 would comply with the Forest Plan. The implementation of any of the other alternatives would require an amendment to the Forest Plan.

Chapter Five

Comparison of Alternatives

To assist in the evaluation and comparison of alternatives, the following table was prepared.

Chapter Five

Comparison of Effects of Alternatives

**Indicates Outstandingly Remarkable Value

	ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III	ALTERNATIVE IV	ALTERNATIVE V
TIMBER HARVEST					
Acres available for scheduled harvest	439	0	0	439	0
Annual Volume (ASQ in MBF) (estimated)	34.2	0	No scheduled harvest.	34.2	No scheduled harvest.
Annual Timber Receipts to Counties (estimate is based on 5-yr average, stumpage of $337/mbf)	$2,900	0	Less than Alt. 1	$2,900	Less than Alt. 1
Harvest Rotation Length (or oldest trees' target age)	250 years in foreground.	Not applicable. No harvest.	Greater than 250 years.	250 years.	Greater than 250 years.
Long and short-term Ecosystem Management (The composite of ability to maintain desired timber plant communities)	Scenic: Moderately responsive in short and long term. Wild: Low responsiveness. Limited by visual constraints.	Scenic: Low responsiveness. Wild: Low responsiveness. Promotes Rx fire but limited by visual constraints and allows no timber harvest in scenic or wild segments.	Scenic: Highly responsive in short term. Moderately responsive in long term. Wild: Moderately responsive in short term. Low responsiveness in long term. Visual constraints relaxed for period of time, but MA 13 constraints on management of 1,350 acres.	More responsive than Alt. 3 since only 403 acres will be constrained by MA 13 standards.	Scenic: Moderately responsive in short and long term. Wild: Moderately responsive in short and long term. Limited by visual constraints, but not limited by MA 13 standards.
MINING ACTIVITIES	Mineral potential within the corridor in levels which are economically feasible for mining operations is thought to be low. If mining activities were to occur, as allowed by alternatives, mitigation would not eliminate all potential adverse effects to river values and resources. In the wild segment, mining activities are not permitted within 1/4 mile of the river.				
**GEOLOGY	All alternatives provide for protection of the geology of the river corridor.				

GRAZING					
Area available for grazing	2,730 acres	0 acres	2,730 acres	2,730 acres	2,730 acres
Animal Months (AM's)	82	0	82	82	76
Riparian area forage condition Improvement Rate	Least rapid.	Most rapid.	Same as Alt. 1.	More rapid than Alts. 1 and 3.	Same as Alt. 4.
Annual grazing receipts to Counties	$40	$0	$40	$40	$37
Conflicts with recreationists	Existing conflicts will continue. More conflicts due to better access for cattle in scenic segment.	Existing conflicts eliminated.	More conflicts than Alt. 1.	Less conflict than Alt. 1.	Fewer conflicts than Alt. 1 in the wild segment.
**VISUALS/SCENERY					
Landscape alteration through management activities	Most noticeable alterations will result in the least natural appearing landscape.	Least noticeable alterations will result in most natural appearing landscape. Prescribed fire effects will be most evident in this alternative.	Lower level of alteration than Alts. 1 and 4.	Similar level of alteration as Alt. 1.	Lower level of alteration than Alts. 1, 3, and 4.
Visual Quality Objectives (VQO's)	Scenic: Foreground-Retention, Middleground-Partial Retention. Wild: Foreground-Preservation, Middleground-Retention.	Preservation throughout corridor. Retention for necessary wildlife and fisheries improvements and recreation facilities. Prescribed fire effects to be considered natural appearing.	Scenic: Retention. Wild: Preservation. Allows short-term relaxation to Partial Retention for rehabilitation and enhancement of outstandingly remarkable values. Partial Retention for necessary fences, wildlife and fisheries improvements, and recreation facilities.	Same as Alt. 3.	Scenic: Retention. Wild: Preservation. Partial Retention for fences, wildlife and fisheries improvements, and necessary recreation facilities.
Scenic beauty protection	Provides moderate level of protection.	Provides highest level of protection. Prescribed fire will be the only significant management activity which affects scenic beauty.	Allows short-term protection but less than Alt. 1 due to Partial Retention VQO to address forest health concerns. Middleground areas will be protected more than Alt. 1 in the long term in Scenic segment. This alternative provides a high level of protection, but less than Alt. 2.	Same as Alt. 3.	Provides very high level of protection, but less than Alt. 2.

RECREATION					
New Campgrounds within the Corridor	0	0	1	0	0
New Campgrounds outside the Corridor	0	0	0	1	0
Trails	5 miles of new trail will improve access to the northern portion of the corridor. Recreational opportunity in this area will increase. Potential for increased fishing pressure on sensitive fish and slight decrease in water quality and condition of streambank vegetation.	3 miles of road to be converted to trail. Trails managed for non-motorized use only. Displacement of some recreationists will result in lower use.	10 miles of new trail construction will improve access to both segments of the river. Increased use of the corridor increases potential for impacts to fish and habitat.	Trail construction as in Alt. 3. Motorized use allowed in scenic segment will provide additional recreational opportunity, but may result in increased trail user conflicts.	No new trails. Malheur River Trail to be managed at higher difficulty level. Use may decline slightly.
Developed Campground and Forest Camp Capacity PAOT's (people at one time)	15	0	35	40	15
Dispersed Camp Sites	10+	0	10+	13+	10+
Recreation Settings (ROS) and Recreation Experiences	The existing direction is to manage the river corridor as **semi-primitive, non-motorized**, in a setting with few interactions with other visitors and high opportunity for solitude. The existing roads in the corridor and use levels around the two fords will not provide this experience in these areas. Recreation use will increase in the river corridor.	This alternative provides a true **semi-primitive, non-motorized** recreation setting. Access is limited to trails and non-motorized cross country travel. Existing uses will decline. Dissatisfaction with some returning recreationists will occur. People seeking more primitive settings will prefer the more pristine conditions.	Provides for **roaded natural** settings at Forest Camps, **semi-primitive, non-motorized** elsewhere, and allows snowmobile use in scenic segment. Additional developments and trails will appeal to some recreationists. Some others who prefer more primitive settings will likely be displaced and go to other areas. Recreation use will increase in the corridor.	Roaded access to scenic segment will be improved. The **roaded natural** setting in this area will create dissatisfaction with people seeking solitude. New trails in the wild segment will result in more use of this portion of the corridor and provide less opportunities for solitude, but will still provide the **semi-primitive, non-motorized** setting.	Settings will be as in Alt. 3. Recreation experiences will be similar to what is currently provided. Trail use may decline slightly. Minor improvements to existing recreation facilities will increase user satisfaction.
New Trail Construction	5 miles trail. 1 snowmobile bridge.	3 miles of existing road converted to trails.	10 miles. 1 snowmobile bridge.	10 or more miles. 1 snowmobile bridge.	None.
FISHERIES					
Habitat recovery and improvement rate	Provides the lowest recovery rate.	Most rapid.	More rapid than Alt. 1, less rapid than Alts. 2, 4, and 5.	Less rapid than Alts. 2 and 5, more rapid than Alts. 1 and 3.	Less rapid than Alt. 2, more rapid than Alts. 1, 3, and 4.

**WILDLIFE					
Old Growth management	403 acres reserved. 139 acres of replacement old growth.	1,350 acres reserved. Habitat quality may be diminished over time. (335% increase)	1,350 acres reserved. Habitat quality may be diminished over time. (335% increase)	403 acres reserved. Habitat quality may be diminished over time. (0% increase)	1,350 acres to be managed in perpetuity. Habitat quality will continue be high over time. (335% increase)
Cavity excavator habitat	Will allow up to 40% less habitat than potential.	Will maintain 100% of potential habitat.	Same as Alt. 2.	Scenic: Will allow up to 20% less habitat than potential. Wild: Will maintain 100% of potential.	Same as Alt. 2.
Wildlife habitat protection	All alternatives provide for a high level of wildlife protection. The effectiveness of the corridor to provide connectivity between habitats on adjacent lands will be maintained. The corridor will continue to serve as a travel corridor. There are some differences between alternatives in the level of protection provided, however:				
	Provides for lowest level of protection.	Provides for highest level of protection.	Higher level than Alts. 1 and 4, lower level than Alts. 2 and 5.	Same as Alt. 1.	Less protection than Alt. 2 but higher level than Alts. 1, 3, or 4.
Long-term wildlife habitat enhancement project opportunities	Provides for unrestricted opportunities.	Opportunities are very restricted.	Opportunities greater than Alt. 2, but less than Alt. 1 due to more old-growth habitat in this alternative.	Same as Alt. 1.	Same as Alt. 3.
WATER QUALITY	All alternatives will meet or exceed State water quality standards. All alternatives will maintain and protect the free flowing conditions of the river. Water quality will likely improve slightly more in alternatives which limit impacts from cattle and humans, but at levels too low to quantify. Implementation of any alternatives will provide improved conditions where existing impacts from grazing are severe. Water temperature will likely remain static, except be cooler in deeper pools which develop as the large woody debris component increases through time. Within 10 years, the predicted 1 degree increase in stream temperature which was a result of past wildfires within the watershed should recover to pre-fire temperatures. The nomination of the Malheur River to the State of Oregon as an Outstanding Resource Water is unnecessary. Existing water quality protective measures and guidelines for the watershed are provided in the Forest Plan which will ensure high levels of water quality protection continues in the future.				
CULTURAL RESOURCES Prehistoric and **Historic	All alternatives provide high levels of protection for cultural resources. The alternatives allow for interpretation of prehistoric and historic properties such as the splash dam site at Malheur Ford. Any activities affecting historic and prehistoric properties will conform with existing laws and regulations which direct the management of cultural resources.				
ROADS	Existing roads remain open.	All roads closed, may be converted to trails. Existing use at Forest Camps will be curtailed. Some reduction in sediment delivery to the river.	Same as Alt. 1.	New roads are allowed for recreation access and timber harvest in the scenic segment. Some additional sediment may result.	Same as Alt. 1.
AIR QUALITY/ SMOKE MANAGEMENT	Any prescribed burning will be conducted in compliance with the State of Oregon Implementation Plan for Smoke Management. No long-term adverse effects from smoke production have been identified.				

Chapter Six

Desired Future Condition

In preparing this environmental assessment, planners were charged with reviewing the objectives of Wild and Scenic River management, the Desired Future Condition. This condition will differ, depending on the strategy selected for Malheur Wild and Scenic River management.

The description of alternatives below can be considered an extension through time of environmental consequences given in Chapter Four.

Alternative 1

Scenery

After 10 years:

The appearance of the river corridor will be maintained in natural or near natural conditions. Alterations in the landscape are not evident in visual foregrounds, but may be obvious in middlegrounds. Alterations in middleground will follow the form and natural character of the landscape.

After 50 years:

Visitors will experience the feeling of being in an area unaffected by development activities. Large diameter ponderosa pine will be evident in the corridor. Only subtle changes in the appearance of the landscape will be noticeable.

Fisheries and Watershed

After 10 years:

Fisheries improvement projects have resulted in improved conditions. A slight increase in bank stability and riparian vegetation would be achieved.

After 50 years:

All riparian areas in less than desirable condition will have been improved to provide for all riparian-dependent resources. Streamside vegetation will be more diverse and abundant with native species. Bank stability, water quality, fish and wildlife habitat, recreation opportunities, and aesthetics will all have improved.

Wildlife

After 10 years:

The river corridor will provide travel routes for wildlife between old-growth areas. Species which use riparian areas will be responding positively to improved riparian conditions. Prescribed burning, seeding, browse planting, pruning, mechanical disturbance, and fertilization has enhanced forage production. Other habitat improvement projects, aspen stand enhancement and riparian vegetative plantings, may have occurred.

Habitat for between 60 and 100 percent of the potential population of primary cavity excavators and nesters will be provided. Snags will be well distributed and green tree replacements will be provided to provide snags over time. There are viable populations of species that are candidates for listing as threatened or endangered.

The corridor will provide 403 acres of old growth and 190 replacement acres of old-growth type habitat.

After 50 years:

Big game forage quantity and quality will have improved and populations, reflecting this improvement, have slightly increased.

Habitat to support 60 to 100 percent of the potential population of cavity excavators and nesters has been maintained.

The beneficial effects of early habitat improvement projects will be experienced.

Timber

There is no specific desired future condition in the Forest Plan for silviculture and timber management in wild and scenic river corridors.

Range Forage Conditions

After 10 years:

Modified grazing strategies on selected allotments will increase the rate of improvement in riparian vegetation. Riparian areas within allotment pastures will show improvements due to reduced utilization of grasses and shrubs. Woody shrubs will be more prevalent.

Forest Plan utilization standards for grasses and shrubs will be met.

After 50 years:

All allotments will include full utilization of forage available for livestock. Exterior boundary fences will be in place and adequately designed water developments will be installed. All grazing areas in the corridor will be in a satisfactory or better condition.

Fire

In 10 and 50 years:

Prescribed fire will have played a role in converting stands of mixed conifer back to ponderosa pine in the river corridor. Most of this pine will have been underburned. Encroachment by fir will have been forestalled.

Recreation

Semi-Primitive, Non-Motorized ROS

In 10 and 50 years:

Future generations will still experience the feeling of being in an area unaffected by development and disruptive activities. It will continue to be an area where one can enjoy the scenic beauty of a river corridor.

There will continue to be low to moderate evidence of other people in these natural or natural appearing environments. Motorized recreation is not permitted but there are roads that are used for other management activities.

Dispersed campsites are located to take advantage of topographic and vegetative screening and interactions between campsites are infrequent. Opportunities for experiencing solitude, independence, and closeness to nature are good and encounters on the trail system with other users will be rare.

There are on-site controls and restrictions, but they are subtle. Contacts with administrators will be infrequent. Facilities such as Malheur Ford Forest Camp and trailheads will be managed to the standards of semi-primitive motorized ROS class. Native, rustic materials will be used for signing and sanitary and safety facilities.

Alternative 2

Scenery

After 10 years:

Visitors continue to see large diameter trees, some multi-storied forests, and grasslands bisected by the shrub lined, clear flowing Malheur River.

The appearance of the river corridor will be natural. Alterations in the landscape from management activities are not evident. There is less uniformity and evenness; a coarser texture is provided in areas with dead trees. The old-growth character of the river corridor has been maintained.

After 50 years:

A naturally appearing mosaic of vegetation, with varying textures and openings that have been created through natural cycles, is evident. Only subtle changes in the appearance of the landscape are noticeable.

Ponderosa pine is still the dominant overstory tree species within the river corridor. Large diameter pine are common, but less evident than in the past. A mixture of firs or lodgepole pine are dominant on some sites. The river corridor continues to provide an old-growth character setting.

Effects of fire are periodically evident. The health and vigor of timbered stands has been maintained

with prescribed fire. Visual fire effects, such as charred logs and bark, are evident in some places.

Fisheries and Watershed

After 10 years:

Populations of redband trout, whitefish, and all native non-game fish species have been maintained. An increase in the amount of in-channel large woody debris provides more structural habitat diversity for resident fish, especially trout. Large pool, scour pool, and pocket pool habitat has been maintained or increased throughout the corridor.

Increased streamside vegetation, both grasses and grass-like plants and hardwoods, have improved both streambank stability and shading.

Spawning habitat for trout populations has been maintained. Management generated pollutants such as sediment, turbidity, and bacterial contaminants have been reduced.

After 50 years:

All riparian areas in less than desirable condition will have been improved to provide for all riparian-dependent resources and will be in satisfactory condition. Streamside vegetation will be more diverse and abundant with native species. Increased streamside vegetation, especially sedges and hardwoods, has increased both streambank stability and shading. Ninety percent of the streambanks are in stable condition. Streambank vegetation has increased to 90 percent of site potential. Shrub cover will have increased, and range from 40 to 80 percent, depending upon site potential.

In-channel large woody debris has increased to about 150 pieces per mile throughout the corridor. In the reach below Malheur Ford, the large woody debris component has been maintained.

Populations of redband trout, whitefish, and all native non-game species have increased. Bull trout are now found in portions of the river. There has been a gradual improvement in watershed conditions. Management generated pollutants such as sediment, turbidity, and bacterial contaminants have been reduced. Water quality is high.

Wildlife

After 10 and 50 years:

The Malheur Wild and Scenic River corridor remains an ecologically diverse area. It continues to provide exceptional wildlife habitat for a great many species. Management activity has occurred at lower levels than surrounding areas.

The corridor provides connectivity between the Great Basin and Blue Mountain physiographic provinces. It is used as a major travel route by many wildlife species and provides an avenue for genetic dispersal, which increases sustainability. Management for biological diversity has maintained horizontal and vertical structure perpetuating a wide variety of habitat types.

Habitat has been protected for the many species inhabiting the river corridor. Potential habitat for proposed, endangered, threatened, or sensitive species will continue to be provided.

About 1,350 acres will be managed for old-growth habitat. Old-growth ponderosa pine forests will have 8-15 trees per acre larger than 20 inches in diameter and will contain a few large fallen trees per acre. Mixed conifer old growth will have more large diameter trees (15 inches or greater) and down logs of all sizes, and will have a multi-storied appearance.

Riparian habitats are in satisfactory condition. Riparian vegetation composition will be more characteristic of the potential vegetation of the sites. Generally, hardwood species are more dominant; trees and shrubs provide additional canopies in the riparian zones.

Non-forested areas are generally unchanged in appearance; they are occupied by grasses, forbs, and shrubs. Mountain browse species such as bitterbrush, mountain mahogany and serviceberry are significant on sites which support them. These species provide browse and hiding cover for large animals and nest sites for song birds.

Habitat is provided to meet 100 percent of the potential population levels of cavity excavators and nesters.

Where permitted by site potential, cover for big game is optimum. It includes a high proportion of satisfactory cover to marginal cover. Hiding cover is abundant and big game forage is available in areas where early-seral conditions are present and the regeneration of trees is occurring.

Populations of wildlife are generally unchanged from the existing, but there will be some small increases in passerine birds and other riparian associated species.

Timber

After 10 years:

The general ecological condition for the mixed conifer and ponderosa pine association stands is more stable, moving towards conditions which prevailed before the suppression of fires.

After 50 years:

These stands have reached an even more stable ecological condition, similar to that found by the early European settlers. On some sites, frequent low intensity fires have controlled encroachment by shade tolerant, climax species such as white fir.

Seral species such as ponderosa pine and western larch have become established on some sites now occupied by climax species. Large diameter ponderosa pine now dominate the overstory in many areas of the corridor. These pine stands have an open, park-like appearance with pinegrass/sedge the dominant vegetation in most understories.

In areas where existing stand conditions and adverse fire effects precluded the use of prescribed fire, the absence of timber management has resulted in the loss of some overstory trees through time.

Range Forage Conditions

After 10 years:

The exclusion of livestock has produced a broader mix of successional species and plant communities now represent later seral stages.

Overall plant vigor has increased. Range forage condition will probably decrease in some riparian areas where grasses have been suppressed by the increase in shade from alder, dogwood, and willow. To some extent deposits of sediments trapped as streamside vegetation recovers has contributed to this decline.

The maximum riparian utilization standard of 45 percent for grasses and grass-like plants and 40 percent on shrubs are being met by wildlife, whose populations are within the carrying capacity.

There is no conflict between recreation users and cattle.

After 50 years:

The broad mix of successional species dominance of late-seral ecological communities continues. There is sustained production of both palatable and non-palatable species for grazing by wildlife.

Riparian vegetation is in satisfactory condition and at near site potential for late-seral ecological plant communities. Wildlife utilization of forage in the corridor does not exceed standards and the populations continue to be within the carrying capacity.

There is no conflict between recreation users and cattle.

Fire

After 10 years:

Prescribed burning to enhance scenic values and improve wildlife habitat has reduced fuel loadings.

After 50 years:

The condition of fuels in the corridor is such that ignitions do not produce flame lengths longer than 4 feet, allowing direct attack by hand crews. Fuel loadings have been reduced and are maintained at the following average levels: in stands dominated by ponderosa pine, 7-PP-3; in mixed conifer stands, 1-MC-4, and in lodgepole pine stands, 3-LP-3. The table below describes these profiles.

Fuel Profile Name	0 - 3" (T/ac.)	3 - 20+" (T/ac.)	Large Down Logs
7 - PP - 3	1.5	21.1	2 - 5
1 - MC - 4	5.4	15.5	2 - 5
3 - LP - 3	4.7	18.3	4 - 8

An average of two to five logs per acre, at least 12 feet long and 10 inches in diameter at the small end have been left on the ground and contribute to wildlife habitat. The fuel profiles listed above include these logs scattered on the ground.

Prescribed fire has been used to improve wildlife habitat and enhance visual quality, primarily in areas where fire has historically been part of the ecosystem. This has reduced fuel loadings and re-established species compositions which existed prior to the fire suppression era. Wildfire may now play a more natural role in river corridor ecosystems.

Recreation

In 10 and 50 years:

The river corridor provides a primitive, non-motorized setting where future generations may still experience a feeling of being in an area unaffected by management activities. Scenic beauty continues to be enjoyed in natural and natural appearing settings.

Visitors encounter little evidence of other users. Topographic and vegetative screening have been used to separate dispersed campsites. Opportunities for solitude and a feeling of independence and closeness to nature are high.

On-site controls and restrictions are subtle. Contact with administrators is infrequent. Forest camps are located outside the corridor. Because of an lowered maintenance level, the Malheur River Trail has declined and travel within the wild segment of the corridor is more difficult. Access to the corridor is limited to foot, horseback, and mountain bike travel.

Alternative 3

Scenery

After 10 years:

Visitors continue to see large diameter trees, some multi-storied forests, and grasslands bisected by the shrub lined, clear flowing Malheur River.

The scenic river segment of the corridor has a natural or near natural appearance. Where timber harvest has occurred, trees are in clumps, groups, or naturally spaced. Stumps are flush cut to the ground and, therefore, not evident.

The appearance of the wild segment of the river corridor will be natural. Alterations in the landscape from management activities are not evident. There is less uniformity and evenness; a coarser texture is provided in areas with dead trees. The old-growth character of the river corridor has been maintained.

After 50 years:

A naturally appearing mosaic of vegetation, with varying textures and openings that have been created through natural cycles and limited timber harvest, is evident. Only subtle changes in the appearance of the landscape are noticeable.

Ponderosa pine is still the dominant overstory tree species within the river corridor. Large diameter pine are common, but less evident than in the past. A mixture of firs or lodgepole pine are dominant on some sites. The river corridor continues to provide an old-growth character setting.

In the wild segment, where timber harvest has not occurred, the appearance of the corridor is dominated by large diameter trees, some multi-storied forest, and grasslands. Areas of dead trees have increased the texture of the natural landscape.

Effects of fire are periodically evident. The health and vigor of timbered stands has been maintained with prescribed fire. Visual fire effects, such as charred logs and bark, is moderately evident in some places.

Fisheries and Watershed

After 10 years:

Populations of redband trout, whitefish, and all native non-game fish species have been maintained. An increase in the amount of in-channel large woody debris provides more structural habitat diversity for resident fish, especially trout. Large pool, scour pool, and pocket pool habitat has been maintained or increased throughout the corridor.

Increased streamside vegetation, both grasses and grass-like plants and hardwoods, have improved both streambank stability and shading.

Spawning habitat for trout populations has been maintained. Management generated pollutants such as sediment, turbidity, and bacterial contaminants have been reduced.

After 50 years:

All riparian areas in less than desirable condition will have been improved to provide for all riparian-dependent resources and will be in satisfactory condition. Streamside vegetation will be more diverse and abundant with native species. Increased streamside vegetation, especially sedges and hardwoods, has increased both streambank stability and shading. Ninety percent of the streambanks are in stable condition. Streambank vegetation has increased to 90 percent of site potential. Shrub cover will have increased, and ranges from 40 to 80 percent, depending upon site potential.

In-channel large woody debris has increased to about 150 pieces per mile throughout the corridor. In the reach below Malheur Ford, the large woody debris component has been maintained.

Populations of redband trout, whitefish, and all native non-game species have increased. Bull trout are now found in portions of the river. There has been a gradual increase in watershed conditions. Management generated pollutants such as sediment, turbidity, and bacterial contaminants have been reduced. Water quality is high.

Wildlife

In 10 and 50 years:

The Malheur Wild and Scenic River corridor remains an ecologically diverse area. It continues to provide exceptional wildlife habitat for a great many species. Management activity has occurred at lower levels than surrounding areas.

The corridor provides connectivity between the Great Basin and Blue Mountain physiographic provinces. It is used as a major travel route by many wildlife species and provides an avenue for genetic dispersal, which increases sustainability. Management for biological diversity has maintained horizontal and vertical structure perpetuating a wide variety of habitat types.

Habitat has been protected for the many species inhabiting the river corridor. Potential habitat for proposed, endangered, threatened, or sensitive species will continue to be provided.

About 1,350 acres will be managed for old-growth habitat. Old-growth ponderosa pine forests will have 8-15 trees per acre larger than 20 inches in diameter and will contain a few large fallen trees per acre. Mixed conifer old growth will have more large diameter trees (15 inches or greater) and down logs of all sizes, and will have a multi-storied appearance.

Riparian habitats are in satisfactory condition. Riparian vegetation composition will be more characteristic of the potential vegetation of the sites. Generally, hardwood species are more dominant; trees and shrubs provide additional canopies in the riparian zones.

Non-forested areas are generally unchanged in appearance; they are occupied by grasses, forbs, and shrubs. Mountain browse species such as bitterbrush, mountain mahogany and serviceberry are significant on sites which support them. These species provide browse and hiding cover for large animals and nest sites for song birds.

Habitat is provided to meet 100 percent of the potential population levels of cavity excavators and nesters.

Where permitted by site potential, cover for big game is optimum. It includes a high proportion of satisfactory cover to marginal cover. Hiding cover is abundant and big game forage is available in areas where early-seral conditions are present and the regeneration of trees is occurring.

Populations of wildlife are generally unchanged from the existing, but there will be some small increases in passerine birds and other riparian associated species.

Timber

After 10 years:

The general ecological condition for the mixed conifer and ponderosa pine associations stands is more stable, moving towards conditions which prevailed before the suppression of fires.

After 50 years:

These stands have reached an even more stable ecological condition, similar to that found by the early European settlers. On some sites, frequent low intensity fires have controlled encroachment by shade tolerant, climax species such as white fir.

Seral species such as ponderosa pine and western larch have become established on some sites now occupied by climax species. Large diameter ponderosa pine now dominate the overstory in many areas of the corridor. These pine stands have an open, park-like appearance with pinegrass/sedge the dominant vegetation in most understories.

In areas where existing stand conditions and adverse fire effects precluded the use of prescribed fire, the absence of timber management has resulted in the loss of some overstory trees through time.

Range Forage Conditions

After 10 years:

Improved livestock management has resulted in the presence of a broader mix of successional species within the corridor and plant communities now represent later seral stages.

Overall plant vigor has increased. Range forage condition will probably decrease in some riparian areas where grasses have been suppressed by the increase in shade from alder, dogwood, and willow. Deposits of sediments trapped as streamside vegetation recovers has contributed to this decline to some extent.

The maximum riparian utilization standard of 45 percent for grasses and grass-like plants and 40 percent on shrubs are being met by livestock and wildlife, whose populations are within the carrying capacity.

There are few conflicts between recreation users and cattle.

After 50 years:

The broad mix of successional species dominance of late-seral ecological communities continues. There is sustained production of both palatable and non-palatable species for grazing by livestock and wildlife.

Riparian vegetation is in satisfactory condition and at near site potential for late-seral ecological plant communities. Livestock and wildlife utilization of forage in the corridor does not exceed standards and the populations continue to be within the carrying capacity.

There are few conflicts between recreation users and cattle.

Fire

After 10 years:

Prescribed burning to enhance scenic values and improve wildlife habitat has reduced fuel loadings.

After 50 years:

The condition of fuels in the corridor is such that ignitions do not produce flame lengths longer than 4 feet, allowing direct attack by hand crews. Fuel loadings have been reduced and are maintained at the following average levels: in stands dominated by ponderosa pine, 7-PP-3; in mixed conifer stands, 1-MC-4, and in lodgepole pine stands, 3-LP-3. The table below describes these profiles.

Fuel Profile Name	0 - 3" (T/ac.)	3 - 20+" (T/ac.)	Large Down Logs
7 - PP - 3	1.5	21.1	2 - 5
1 - MC - 4	5.4	15.5	2 - 5
3 - LP - 3	4.7	18.3	4 - 8

An average of two to five logs per acre, at least 12 feet long and 10 inches in diameter at the small end have been left on the ground and contribute to wildlife habitat. The fuel profiles listed above include these logs scattered on the ground.

Prescribed fire has been used to improve wildlife habitat and enhance visual quality, primarily in areas where fire has historically been part of the ecosystem. This has reduced fuel loadings and re-established species compositions which existed prior to the fire suppression era. Wildfire may now play a more natural role in river corridor ecosystems.

Recreation

In 10 and 50 years:

Semi-primitive, Non-motorized ROS Class

The river corridor, with the exception of the two Forest Camp areas, provides a setting where future generations may still experience a feeling of being in an area unaffected by management activities. Scenic beauty continues to be enjoyed in natural and natural appearing settings.

Visitors encounter little evidence of other users. Topographic and vegetative screening have been used to separate dispersed campsites. Opportunities for solitude and a feeling of independence and closeness to nature are high.

On-site controls and restrictions are subtle. Contact with administrators is infrequent. Forest camps are located outside the corridor. Because of a lowered maintenance level, the Malheur River Trail has declined and travel within the wild segment of the corridor is more difficult. Access to the corridor is limited to foot, horseback, and mountain bike travel.

Roaded Natural ROS Class

The areas around Malheur Ford and Burnt Bridge Forest Camps provide settings where people continue to derive satisfaction from visits to a relatively remote river corridor where natural conditions have been only slightly altered by management activities. Visitors continue to enjoy the scenic beauty of the river corridor.

There is moderate evidence of human activities and structures. Roads and motorized vehicles are common in the area. Campsites are heavily used. The opportunity to experience solitude by camping out of the sight and sound of other parties is moderate, except low during hunting season.

Signing and public education programs enhance the experiences of visitors and provide for better resource protection. Management presence and regulations will affect visitor behavior.

Alternative 4

Scenery

After 10 years:

Visitors continue to see large diameter trees, some multi-storied forests, and grasslands bisected by the shrub lined, clear flowing Malheur River.

The scenic river segment of the corridor has a natural or near natural appearance. Where timber harvest has occurred, trees are in clumps, groups, or naturally spaced. Stumps are flush cut to the ground and, therefore, not evident.

The appearance of the wild segment of the river corridor will be natural. Alterations in the landscape from management activities are not evident. There is less uniformity and evenness; a coarser texture is provided in areas with dead trees. The old-growth character of the river corridor has been maintained.

After 50 years:

A naturally appearing mosaic of vegetation, with varying textures and openings that have been created through natural cycles and limited timber harvest, is evident. Only subtle changes in the appearance of the landscape are noticeable.

Ponderosa pine is still the dominant overstory tree species within the river corridor. Large diameter pine are common, but less evident than in the past. A mixture of firs or lodgepole pine are dominant on some sites. The river corridor continues to provide an old-growth character setting.

In the wild segment, where timber harvest has not occurred, the appearance of the corridor is dominated by large diameter trees, some multi-storied forest, and grasslands. Areas of dead trees have increased the texture of the natural landscape.

Effects of fire are periodically evident. The health and vigor of timbered stands has been maintained with prescribed fire. Visual fire effects, such as charred logs and bark, is moderately evident in some places.

Fisheries and Watershed

After 10 years:

Populations of redband trout, whitefish, and all native non-game fish species have been maintained. An increase in the amount of in-channel large woody debris provides more structural habitat diversity for resident fish, especially trout. Large pool, scour pool, and pocket pool habitat has been maintained or increased throughout the corridor.

Increased streamside vegetation, both grasses and grass-like plants and hardwoods, have improved both streambank stability and shading.

Spawning habitat for trout populations has been maintained. Management generated pollutants such as sediment, turbidity, and bacterial contaminants have been reduced.

After 50 years:

All riparian areas in less than desirable condition will have been improved to provide for all riparian-dependent resources and will be in satisfactory condition. Streamside vegetation will be more diverse and abundant with native species. Increased streamside vegetation, especially sedges and hardwoods, has increased both streambank stability and shading. Ninety percent of the streambanks are in stable condition. Streambank vegetation has increased to 90 percent of site potential. Shrub cover will have increased, and ranges from 40 to 80 percent, depending upon site potential.

In-channel large woody debris has increased to about 150 pieces per mile throughout the corridor. In the reach below Malheur Ford, the large woody debris component has been maintained.

Populations of redband trout, whitefish, and all native non-game species have increased. Bull trout are now found in portions of the river. There has been a gradual increase in watershed conditions. Management generated pollutants such as sediment, turbidity, and bacterial contaminants have been reduced. Water quality is high.

Wildlife

In 10 and 50 years:

The Malheur Wild and Scenic River corridor remains an ecologically diverse area. It continues to provide exceptional wildlife habitat for a great many species. Management activity has occurred at lower levels than surrounding areas.

The corridor provides connectivity between the Great Basin and Blue Mountain physiographic provinces. It is used as a major travel route by many wildlife species and provides an avenue for genetic dispersal, which increases sustainability. Management for biological diversity has maintained horizontal and vertical structure perpetuating a wide variety of habitat types.

Habitat has been protected for the many species inhabiting the river corridor. Potential habitat for proposed, endangered, threatened, or sensitive species will continue to be provided.

About 403 acres will be managed for old-growth habitat. Old-growth ponderosa pine forests will have 8-15 trees per acre larger than 20 inches in diameter and will contain a few large fallen trees per acre. Mixed conifer old growth will have more large diameter trees (15 inches or greater) and down logs of all sizes, and will have a multi-storied appearance.

Riparian habitats are in satisfactory condition. Riparian vegetation composition will be more characteristic of the potential vegetation of the sites. Generally, hardwood species are more dominant; trees

and shrubs provide additional canopies in the riparian zones.

Non-forested areas are generally unchanged in appearance; they are occupied by grasses, forbs, and shrubs. Mountain browse species such as bitterbrush, mountain mahogany and serviceberry are significant on sites which support them. These species provide browse and hiding cover for large animals and nest sites for song birds.

Habitat is provided to meet 80 percent of the potential population levels of cavity excavators and nesters.

Where permitted by site potential, cover for big game is optimum. It includes a high proportion of satisfactory cover to marginal cover. Hiding cover is abundant and big game forage is available in areas where early-seral conditions are present and the regeneration of trees is occurring.

Populations of wildlife are generally unchanged from the existing, but there will be some small increases in passerine birds and other riparian associated species.

Timber

After 10 years:

The general ecological condition for the mixed conifer and ponderosa pine associations stands is more stable, moving towards conditions which prevailed before the suppression of fires.

After 50 years:

These stands have reach even more stable ecological condition, similar to that found by the early European settlers. On some sites, frequent low intensity fires have controlled encroachment by shade tolerant, climax species such as white fir.

Seral species such as ponderosa pine and western larch have become established on some sites now occupied by climax species. Large diameter ponderosa pine now dominate the overstory in many areas of the corridor. These pine stands have an open, park-like appearance with pinegrass/sedge the dominant vegetation in most understories.

In areas where existing stand conditions and adverse fire effects precluded the use of prescribed fire, the absence of timber management has resulted in the loss of some overstory trees through time.

Range Forage Conditions

After 10 years:

Improved livestock management has resulted in the presence of a broader mix of successional species within the corridor and plant communities now represent later seral stages.

Overall plant vigor has increased. Range forage condition will probably decrease in some riparian areas where grasses have been suppressed by the increase in shade from alder, dogwood, and willow. To some extent deposits of sediments trapped as streamside vegetation recovers has contributed to this decline.

The maximum riparian utilization standard of 45 percent for grasses and grass-like plants and 40 percent on shrubs are being met by livestock and wildlife, whose populations are within the carrying capacity.

There are few conflicts between recreation users and cattle.

After 50 years:

The broad mix of successional species dominance of late-seral ecological communities continues. There is sustained production of both palatable and non-palatable species for grazing by livestock and wildlife.

Riparian vegetation is in satisfactory condition and at near site potential for late-seral ecological plant communities. Livestock and wildlife utilization of forage in the corridor does not exceed standards and the populations continue to be within the carrying capacity.

There are few conflicts between recreation users and cattle.

Fire

After 10 years:

Prescribed burning to enhance scenic values and improve wildlife habitat has reduced fuel loadings.

After 50 years:

The condition of fuels in the corridor is such that ignitions do not produce flame lengths longer than 4 feet, allowing direct attack by hand crews. Fuel loadings have been reduced and are maintained at the following average levels: in stands dominated by ponderosa pine, 7-PP-3; in mixed conifer stands, 1-MC-4, and in lodgepole pine stands, 3-LP-3. The table below describes these profiles.

Fuel Profile Name	0 - 3" (T/ac.)	3 - 20+" (T/ac.)	Large Down Logs
7 - PP - 3	1.5	21.1	2 - 5
1 - MC - 4	5.4	15.5	2 - 5
3 - LP - 3	4.7	18.3	4 - 8

An average of two to five logs per acre, at least 12 feet long and 10 inches in diameter at the small end have been left on the ground and contribute to wildlife habitat. The fuel profiles listed above include these logs scattered on the ground.

Prescribed fire has been used to improve wildlife habitat and enhance visual quality, primarily in areas where fire has historically been part of the ecosystem. This has reduced fuel loadings and re-established species compositions which existed prior to the fire suppression era. Wildfire may now play a more natural role in river corridor ecosystems.

Recreation

In 10 and 50 years:

Semi-primitive, Non-motorized ROS Class

The river corridor, with the exception of the two Forest Camp areas, provides a setting where future generations may still experience a feeling of being in an area unaffected by management activities. Scenic beauty continues to be enjoyed in natural and natural appearing settings.

Visitors encounter little evidence of other users. Topographic and vegetative screening have been used to separate dispersed campsites. Opportunities for solitude and a feeling of independence and closeness to nature are high.

On-site controls and restrictions are subtle. Contact with administrators is infrequent. Forest camps are located outside the corridor. Because of a lowered maintenance level, the Malheur River Trail has declined and travel within the wild segment of the corridor is more difficult. Access to the corridor is limited to foot, horseback, and mountain bike travel.

Roaded Natural ROS Class

The scenic segment of the river corridor provides settings where people continue to derive satisfaction from visits to a relatively remote river corridor where natural conditions have been only slightly altered by management activities. Visitors continue to enjoy the scenic beauty of the river corridor.

There is moderate evidence of human activities and structures. Roads and motorized vehicles are common in the area. Campsites are heavily used. The opportunity to experience solitude by camping out of the sight and sound of other parties is moderate, except low during hunting season.

Signing and public education programs enhance the experiences of visitors and provide for better resource protection. Management presence and regulations will affect visitor behavior.

Alternative 5

Scenery

After 10 years:

Visitors continue to see large diameter trees, some multi-storied forests, and grasslands bisected by the shrub lined, clear flowing Malheur River.

The scenic river segment of the corridor has a natural or near natural appearance. Where timber har-

vest has occurred, trees are in clumps, groups, or naturally spaced. Stumps are flush cut to the ground and, therefore, not evident.

The appearance of the wild segment of the river corridor will be natural. Alterations in the landscape from management activities are not evident. There is less uniformity and evenness; a coarser texture is provided in areas with dead trees. The old-growth character of the river corridor has been maintained.

After 50 years:

A naturally appearing mosaic of vegetation, with varying textures and openings that have been created through natural cycles, is evident. Only subtle changes in the appearance of the landscape are noticeable.

Ponderosa pine is still the dominant overstory tree species within the river corridor. Large diameter pine are common, but less evident than in the past. A mixture of firs or lodgepole pine are dominant on some sites. The river corridor continues to provide an old-growth character setting.

In the wild segment, where timber harvest has not occurred, the appearance of the corridor is dominated by large diameter trees, some multi-storied forest, and grasslands. Areas of dead trees have increased the texture of the natural landscape.

Effects of fire are periodically evident. The health and vigor of timbered stands has been maintained with prescribed fire. Visual fire effects, such as charred logs and bark, is moderately evident in some places.

Fisheries and Watershed

After 10 years:

Populations of redband trout, whitefish, and all native non-game fish species have been maintained. An increase in the amount of in-channel large woody debris provides more structural habitat diversity for resident fish, especially trout. Large pool, scour pool, and pocket pool habitat has been maintained or increased throughout the corridor.

Increased streamside vegetation, both grasses and grass-like plants and hardwoods, have improved both streambank stability and shading.

Spawning habitat for trout populations has been maintained. Management generated pollutants such as sediment, turbidity, and bacterial contaminants have been reduced.

After 50 years:

All riparian areas in less than desirable condition will have been improved to provide for all riparian-dependent resources and will be in satisfactory condition. Streamside vegetation will be more diverse and abundant with native species. Increased streamside vegetation, especially sedges and hardwoods, has increased both streambank stability and shading. Ninety percent of the streambanks are in stable condition. Streambank vegetation has increased to 90 percent of site potential. Shrub cover will have increased, and ranges from 40 to 80 percent, depending upon site potential.

In-channel large woody debris has increased to about 150 pieces per mile throughout the corridor. In the reach below Malheur Ford, the large woody debris component has been maintained.

Populations of redband trout, whitefish, and all native non-game species have increased. Bull trout are now found in portions of the river. There has been a gradual increase in watershed conditions. Management generated pollutants such as sediment, turbidity, and bacterial contaminants have been reduced. Water quality is high.

Wildlife

In 10 and 50 years:

The Malheur Wild and Scenic River corridor remains an ecologically diverse area. It continues to provide exceptional wildlife habitat for a great many species. Management activity has occurred at lower levels than surrounding areas.

The corridor provides connectivity between the Great Basin and Blue Mountain physiographic provinces. It is used as a major travel route by many wildlife species and provides an avenue for genetic dispersal, which increases sustainability. Management for biological diversity has maintained horizontal and vertical structure perpetuating a wide variety of habitat types.

Habitat has been protected for the many species inhabiting the river corridor. Potential habitat for proposed, endangered, threatened, or sensitive species will continue to be provided.

About 1,350 acres will be managed for old-growth habitat. Old-growth ponderosa pine forests will have 8-15 trees per acre larger than 20 inches in diameter and will contain a few large fallen trees per acre. Mixed conifer old growth will have more large diameter trees (15 inches or greater) and down logs of all sizes, and will have a multi-storied appearance.

Riparian habitats are in satisfactory condition. Riparian vegetation composition will be more characteristic of the potential vegetation of the sites. Generally, hardwood species are more dominant; trees and shrubs provide additional canopies in the riparian zones.

Non-forested areas are generally unchanged in appearance; they are occupied by grasses, forbs, and shrubs. Mountain browse species such as bitterbrush, mountain mahogany and serviceberry are significant on sites which support them. These species provide browse and hiding cover for large animals and nest sites for song birds.

Habitat is provided to meet 100 percent of the potential population levels of cavity excavators and nesters.

Where permitted by site potential, cover for big game is optimum. It includes a high proportion of satisfactory cover to marginal cover. Hiding cover is abundant and big game forage is available in areas where early-seral conditions are present and the regeneration of trees is occurring.

Populations of wildlife are generally unchanged from the existing, but there will be some small increases in passerine birds and other riparian associated species.

Timber

After 10 years:

The general ecological condition for the mixed conifer and ponderosa pine association stands is more stable, moving towards conditions which prevailed before the suppression of fires.

After 50 years:

These stands have reached an even more stable ecological condition, similar to that found by the early European settlers. On some sites, frequent low intensity fires have controlled encroachment by shade tolerant, climax species such as white fir.

Seral species such as ponderosa pine and western larch have become established on some sites now occupied by climax species. Large diameter ponderosa pine now dominate the overstory in many areas of the corridor. These stands have an open, park-like appearance with pinegrass/sedge the dominant vegetation in most understories.

In areas where existing stand conditions and adverse fire effects precluded the use of prescribed fire, the absence of timber management has resulted in the loss of some overstory trees through time.

Range Forage Conditions

After 10 years:

Improved livestock management has resulted in the presence of a broader mix of successional species within the corridor and plant communities now represent later seral stages.

Overall plant vigor has increased. Range forage condition will probably decrease in some riparian areas where grasses have been suppressed by the increase in shade from alder, dogwood, and willow. Deposits of sediments trapped as streamside vegetation recovers has contributed to this decline to some extent.

In the scenic segment, the maximum riparian utilization standard of 45 percent for grasses and grass-like plants and 40 percent on shrubs are being met by livestock and wildlife, whose populations are within the carrying capacity. In the wild segment, the maximum riparian utilization standard of 35 percent is being met.

There are few conflicts between recreation users and cattle.

After 50 years:

The broad mix of successional species dominance of late-seral ecological communities continues.

There is sustained production of both palatable and non-palatable species for grazing by livestock and wildlife.

Riparian vegetation is in satisfactory condition and at near site potential for late-seral ecological plant communities. Livestock and wildlife utilization of forage in the corridor does not exceed standards and the populations continue to be within the carrying capacity.

There are few conflicts between recreation users and cattle.

Fire

After 10 years:

Prescribed burning to enhance scenic values and improve wildlife habitat has reduced fuel loadings.

After 50 years:

The condition of fuels in the corridor is such that ignitions do not produce flame lengths longer than 4 feet, allowing direct attack by hand crews. Fuel loadings have been reduced and are maintained at the following average levels: in stands dominated by ponderosa pine, 7-PP-3; in mixed conifer stands, 1-MC-4, and in lodgepole pine stands, 3-LP-3. The table below describes these profiles.

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Prescribed fire has been used to improve wildlife habitat and enhance visual quality, primarily in areas where fire has historically been part of the ecosystem. This has reduced fuel loadings and re-established species compositions which existed prior to the fire suppression era. Wildfire may now play a more natural role in river corridor ecosystems.

Recreation

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Semi-primitive, Non-motorized ROS Class

The river corridor, with the exception of the two Forest Camp areas, provides a setting where future generations may still experience a feeling of being in an area unaffected by management activities. Scenic beauty continues to be enjoyed in natural and natural appearing settings.

Visitors encounter little evidence of other users. Topographic and vegetative screening have been used to separate dispersed campsites. Opportunities for solitude and a feeling of independence and closeness to nature are high.

On-site controls and restrictions are subtle. Contact with administrators is infrequent. Forest camps are located outside the corridor. Because of a lowered maintenance level, the Malheur River Trail has declined and travel within the wild segment of the corridor is more difficult. Access to the corridor is limited to foot, horseback, and mountain bike travel.

Roaded Natural ROS Class

The areas around Malheur Ford and Burnt Bridge Forest Camps provide settings where people continue to derive satisfaction from visits to a relatively remote river corridor where natural conditions have been only slightly altered by management activities. Visitors continue to enjoy the scenic beauty of the river corridor.

There is moderate evidence of human activities and structures. Roads and motorized vehicles are common in the area. Campsites are heavily used. The opportunity to experience solitude by camping out of the sight and sound of other parties is moderate, except low during hunting season.

Signing and public education programs enhance the experiences of visitors and provide for better

resource protection. Management presence and regulations will affect visitor behavior.

List of Preparers

Carol Agard, Archeologist, Burns Ranger District
Provided information on cultural resources.

Jack Berry, Writer-editor, Prairie City Ranger District
Assisted in writing the environmental assessment.

Carl Corey, Resource Assistant, Fish, Wildlife, and Botany, Prairie City Ranger District
Provided information on wildlife populations and habitat.

Edward Davis, Botanist, Burns Ranger District
Conducted sensitive plants survey and provided botanical information.

Bonita Duncan, District Archeologist, Prairie City Ranger District
Provided information about cultural resources and analyzed effects.

Dan Ermovick, Resource Assistant, Prairie City Ranger District
Assisted in collecting baseline inventory data.

Katherine Farrell, Administrative Assistant, Regional Office
Provided clerical assistance and edited the environmental assessment.

Carole Gillespie, Recreation Forester, Prairie City Ranger District
Assisted in developing alternatives; provided information on recreation, minerals, special uses, trails, and roads; and analyzed effects.

Rich Gritz, Fisheries Biologist, Malheur National Forest
Assisted in developing alternatives, provided information on fish populations and habitat, and analyzed effects.

Jeff Guy, Landscape Architect, Malheur National Forest
Involved in viewshed analysis.

Rudy Hefter, Resource Assistant, Planning, Burns Ranger District
Assisted in developing the alternatives.

Stephen Keegan, Forest Landscape Architect, Malheur National Forest
Assisted in developing alternatives, provided information on scenery, conducted the viewshed analysis, and analyzed effects.

David Kretzing, Hydrologist, Prairie City Ranger District
Assisted in alternative development, provided information on watershed and water quality, and analyzed effects.

Greg Lind, Botanist, Prairie City Ranger District
Provided information about botanical resources.

Robert McNeil, Soil Scientist, Bear Valley Ranger District
Assisted in alternative development, provided information on soils and watershed, analyzed effects of alternatives.

Maureen Quinn, Forestry Technician, Prairie City Ranger District
Provided Geographic Information Systems (GIS) support and provided information about wildlife habitat.

Katherine Ramsey, Wildlife Biologist, Burns Ranger District
Provided information about botanical and wildlife habitats and populations, and prepared the Biological Evaluation.

Steve Rawlings, Forestry Technician, Burns Ranger District
Provided information on timber and analyzed effects of alternatives.

Dan Segovia, Forestry Technician, Burns Ranger District
Assisted in alternative development and provided information about prescribed fire, fuels, and recreation.

Joan Suther, Resource Assistant, Fish, Wildlife, Botany, and Minerals, Burns Ranger District
Assisted in developing the alternatives, provided information on wildlife populations and habitat, assisted in preparation of the Biological Evaluation, and analyzed effects of alternatives on wildlife.

Suzanne Crowley Thomas, Forest Archeologist, Malheur National Forest
Provided information about cultural resources.

Gerrish Willis, Planning Team Leader, Malheur National Forest
Wrote the resource assessment, assisted in alternative development, conducted analysis, and wrote the environmental assessment. Served as interdisciplinary team leader and coordinated public involvement.

Margaret Willits, Botanist, Burns Ranger District
Conducted sensitive plants survey and provided botanical information.

Loretta Zelley, Range Conservationist, Burns Ranger District
Assisted with alternative development, provided information on grazing and allotment management, and analyzed effects.

GLOSSARY

Access Management: The development of travel management policies that consider the development, maintenance, and protection of all forest resources.

All Terrain Vehicle (ATV): Two, three, and four wheeled motorized vehicles used primarily for the enjoyment of driving along trails and across country.

Allotment Management Plan (AMP): A a document prepared in consultation with permittee(s) involved prescribing the manner in and extent to which the permittee's livestock operations will be conducted in order to meet multiple use, sustained yield, economic, and other needs and objectives as determined for the lands involved.

Allowable Sale Quantity (ASQ): The quantity of timber that may be sold from suitable land which has been included in the yield projections for the time period specified in the Forest Plan. This quantity is usually expressed on an annual basis as the average annual allowable sale quantity and is considered chargeable volume.

Alternative: A combination of management prescriptions applied in specific amounts and locations to achieve a desired management emphasis as expressed in goals and objectives. For any proposal, a range of alternatives must be developed that address the issues from which the decision-maker can use in choosing the most appropriate prescription.

Background: A term in visual management to describe the visible terrain beyond the foreground and middleground.

Biological Evaluation: A specific process required as part of an environmental assessment that evaluates the potential effects of a proposed project on proposed, endangered, threatened, and sensitive species and their habitats; done for both plants and animals.

Cavity Nester: Wildlife species that nest in cavities or excavated hollows in trees created by birds or other natural phenomena.

Cultural Resources: The physical remains of human activity (artifacts, ruins, structures, sites, etc.) left by prehistoric or historic peoples and the locations of religious or other cultural use held in importance by contemporary Native Americans.

Decision Notice: The written record of the decision after a federal agency completes an environmental assessment. The deciding official documents the decision of which alternative or blends of alternatives is being selected.

Dispersed Campsite: Campsites outside campgrounds with few or no improvements.

Diversity: The distribution and abundance of different plant and animal communities and species within an area.

Ecosystem: An interactive system of living organisms and the environment where they live.

Endangered Species: Any species, plant or animal, which is in danger of extinction throughout all or a significant portion of its range. Endangered species are identified by the Secretary of the Interior in accordance with the Endangered Species Act.

Endemic: Restricted to and constantly present in a particular locality.

Epidemic: A widespread and unusually high incidence of an insect, disease, or other pest. The pest organism often builds up rapidly to an epidemic population level.

Featured Species: A species of high public interest or demand.

Forage Condition: This is a value rating for livestock forage condition and is designed to depict grazing impacts on vegetation and portray grazing opportunities. The status of herbaceous vegetation is rated against the maximum possible given the existing environment. The classes are:

G - Good, which is 76 to 100 percent of the maximum production of species density and composition.
F - Fair, which is 51 to 75 percent of the maximum production of species density and composition.
P - Poor, which is 26 to 50 percent of the maximum production of species density and composition.
V - Very Poor, which is 0 to 25 percent of the maximum production of species density and composition.

Foreground: A term in visual management to describe the portions of a river between the observer and up to 1/2 mile distant.

Habitat: The area where a plant or animal lives and grows under natural conditions. Habitat consists of living and non-living attributes, and provides all requirements for food and shelter.

Indigenous: Originating in and characterizing a particular area; native.

Issue: A point, matter, or question of public discussion or interest to be addressed or decided through a planning process. Unresolved conflicts regarding alternative uses of available resources.

Limits of Acceptable Change (LAC): A concept for managing change in a natural area, based upon the premise that ecological and social change will occur as a result of natural and human factors. With the LAC concept, management's goal is to keep the character and amount of change that results from human factors within acceptable levels that are consistent with the area.

Management Indicator Species (MIS): Species selected as ecological indicators. The welfare of a management indicator species is presumed to be an indicator of the welfare of other species using the same habitat. The condition and welfare of these species can be used to assess the impacts of management actions on particular areas or habitats.

Middleground: A term in visual management to describe the visible terrain beyond the foreground and up to 5 miles distant.

Mineral Entry: The filing of a mining claim on Federal land to obtain the right to mine any locatable minerals it may contain.

Neo-Tropical Migrants: Birds which breed in North America during the summer but during the winter are in Central and South America.

Non-scheduled Timber Harvest: Timber harvest allowed to occur in an area which is not calculated as part of the programmed harvest. See scheduled timber harvest.

Old-Growth Stand: Any stand of trees (10 acres or greater in size) generally containing the following characteristics: (1) mature and overmature trees in the overstory and are well into the mature growth stage; (2) a multi-layered canopy and trees of several age classes; (3) standing dead trees and down material are present; and (4) evidence of human activity may be present, but it does not significantly alter the other characterisitics and would be a subordinate factor in a description of such a stand.

Old-Growth Trees: Trees which exhibit characteristics of being mature or overmature such as thinning and dead or flat tops, deeply fissured bark, and large diameters.

Oregon Department of Fish and Wildlife (ODFW): The state agency with primary responsibility for managing fish and wildlife populations.

Peak Flow: The highest flow of water attained during a particular flood for a given stream or river.

PETS: Proposed, endangered, threatened, and sensitive animal and plant species.

Potential Natural Community: The biotic community that would become established if all successional sequences were completed without interference by humans under present environmental conditions. Natural disturbances are inherent in development which may include naturalized non-native species.

Prescription: Specific written directions for management activities.

Primary Cavity Excavator: Any animal that excavates a cavity in wood for nesting or roosting.

Proposed Species: Any species, plant or animal, that has been proposed for listing as threatened or endangered under the Endangered Species Act.

Range Allotment: A designated area available for livestock grazing upon which a specified number, kind of livestock, and season of use may be grazed under a term grazing permit.

Range Permittee: One who holds a permit to graze livestock on National Forest lands.

Range Trend: The direction of change in range or forage condition.

Recreation Opportunity Spectrum (ROS): A system of planning and managing recreation resources. There are five classes:

> **Primitive (P):** An area of unmodified natural environment. Usage by humans is low and motorized use within the area is not permitted.
>
> **Semi-primitive, Non-motorized (SPNM):** An area of natural environment. Interaction of users is low but there is often evidence of human usage. Motorized use is not permitted but local roads used for other resource management activities may be present.
>
> **Semi-primitive, Motorized (SPM):** An area of predominantly natural environment. The concentration of users is low but there is often evidence of other users. Some motorized recreation use, as in motor bikes, is permitted.
>
> **Roaded Natural (RN):** An area of predominantly natural-appearing environment with moderate evidence of human usage. Interaction between users is moderate to high and conventional motorized use is allowed.

Roaded Modified (RM): An area characterized by natural environment substantially modified by the development of structures and vegetative manipulation. Signs and sounds of humans are readily evident. Facilities are often provided for special activities. Facilities for intensive motorized use and parking are available.

Resident Fish: Fish species that complete their entire life cycle in fresh water and inhabit the water body being discussed. Examples are mountain whitefish, bull trout, and redband trout.

Rotation: Planned number of years between the formation of a generation of trees and its final harvest at a specified stage of maturity. It is an appropriate term for even-aged silvicultural systems only. In this document, it refers also to the predicted age of individual trees when harvest would be likely to occur.

Scheduled Timber Harvest: Timber harvest programmed in a management plan to occur at a certain rate. The allowable sale quantity (ASQ) is the Forest's total scheduled harvest programmed for a 10-year period expressed as an annual average.

Sedimentation: A process where material carried in suspension by water flows into streams and rivers, increasing turbidity, and eventually settling on the bottom or deposited along banks or on bars.

Sensitive Species: Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Structural Improvements: Includes such structures as nesting boxes, fences, gates, and water developments.

Suitability: The appropriateness of applying certain resource management practices, such as timber management. It is determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices. Suitable forest lands are forested lands that are available for timber management because they have not been withdrawn because of Law or Regulation, where irreversible damage would not occur, and where regeneration can be assured. Areas may be determined unsuitable for timber harvest for a wide variety of reasons, including fragile or shallow soils, scenic values, special wildlife habitat areas, and riparian values, among other possible reasons.

Suitable Timber Lands: Forested lands that are available for timber management because they have not been withdrawn because of Law or Regulation, where irreversible damage would not occur, and where regeneration can be assured.

T&E: Threatened and Endangered Species.

Tentatively Suitable Forest Land: Forest land that is producing or is capable of producing crops of industrial wood and: (1) has not been withdrawn by Congress, the Secretary of Agriculture, or the Chief of the Forest Service; (2) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity or watershed conditions; (3) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that it is possible to restock adequately within 5 years after final harvest; and (4) adequate information is available to project responses to timber management activities.

Term Grazing Permit: A written authorization issued for a specific period of not more than 10 years to graze a specified number, kind, and class of livestock for a specified length of time on National Forest System or

other lands administered by the Forest Service. Upon expiration the holder has priority for receipt of a new term grazing permit. There are five major kinds of term grazing permits.

Threatened Species: Any species, plant or animal, which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Threatened species are identified by the Secretary of the Interior in accordance with the Endangered Species Act.

Utility Corridor: A linear strip of land identified for the present or future location of transportation or utility rights-of-way within its boundaries.

Utilization Standard: Standards guiding the use of forage by livestock and wildlife, usually expressed as the percent removed by weight.

Visual Quality Objective (VQO): The desired level of management based on physical and sociological characteristics of an area. Classifications are:

> **Preservation:** Allows only for ecological changes. Management activities, except for very low visual impact recreation facilities, are prohibited. This objective applies to specially classified areas, including wilderness.
>
> **Retention:** Provides for management activities not visually evident. Management activities are permitted, but the results of those activities on the natural landscape must not be evident to the average viewer.
>
> **Partial Retention:** Management activities may be evident to viewer but must remain visually subordinate to surrounding landscape.
>
> **Modification:** Management activities may visually dominate the natural surrounding landscape but must borrow from naturally established form, line, color, texture.

Watchable Wildlife: Animals for viewing, photographing, etc., rather than hunting or fishing.

Appendix F

ROLES OF AGENCIES

APPENDIX F

Roles of Agencies with Malheur Wild and Scenic River

Management Responsibilities

Successful implementation of the Malheur Wild and Scenic River Management Plan will be through the cooperation of federal, state, and local government agencies. The primary roles and responsibilities of these entities are outlined below.

Federal Agencies

Forest Service:

The Forest Service is responsible for the management and administration of National Forest System Lands. All lands within the Malheur Wild and Scenic River corridor (Management Area 22B) are administered by the Malheur National Forest. Lead administration is taken by the District Ranger, Prairie City Ranger District, but responsibilities are shared with the District Ranger, Burns Ranger District, for some resource areas.

U.S. Fish and Wildlife Service:

The U.S. Fish and Wildlife Service administers the Federal Endangered Species Act of 1973 (as amended). The Forest Service consults with this agency when it is determined that a threatened or endangered species, or its critical habitat, may be affected by a proposed management action. This agency also lists species which it determines are threatened or endangered. The bull trout is a species which has been recently petitioned for listing.

State Agencies

Several State of Oregon agencies have regulatory responsibilities for uses within the river corridor.

Oregon Water Resources Department:

This agency is responsible for the management and allocation of the state's water resources. The Water Resources Commission, an appointed citizens body, develops policy and administrative rules for the Water Resources Department to follow. This department is responsible for granting water rights and monitoring water use.

The Water Resources Commission can protect fish, wildlife, and recreation values on designated wild and scenic rivers through:

a. establishment and maintenance of instream water rights and minimum perennial streamflows;
b. water usw policies in basin programs to guide evaluation of proposed developments;
c. water use classifications;

d. water right application review and permit conditioning; and
e. water use regulation.

Division of State Lands (DSL):

This agency is the administrative arm of the State Land Board, which is composed of the Governor, Secretary of State, and State Treasurer. The Division of State Lands administers the Oregon Removal and Fill Law, which protects state waterways from uncontrolled alteration. This law requires a permit from the DSL for the removal or fill of more than 50 cubic yards of material within waterways of the state. The DSL also has authority to lease the state-owned beds of navigable waterways. Navigability has not been established for this river.

As with any jointly managed resource, jurisdiction is not as important as care for the resources. The DSL and Forest Service will continue to work together to ensure that the public trust interest and the purpose of the Wild and Scenic Rivers Act are met.

Oregon Department of Fish and Wildlife:

This department manages fish and wildlife resources within the state, regulates hunting and fishing, and has habitat preservation responsibilities. Though the Forest Service is responsible for fish and wildlife habitat management on National Forest System Lands (all the lands in the river corridor), it manages these habitats in cooperation with the department. Some funding for habitat improvement projects and population inventory and other studies are cooperative ventures between the two agencies.

The river area is within the Southeast Region of the Department with headquarters in Hines, Oregon. Goals for fisheries resources are expressed in the Malheur River Basin Plan, 1990.

State Historic Preservation Officer (SHPO):

The SHPO serves in an oversight capacity for review of Federal Agencies' compliance with the federal laws and regulations about cultural resource management.

Department of Environmental Quality (DEQ):

This agency is responsible for water quality control. It implements the plans, regulations, procedures, and policies of the Environmental Quality Commission, made up of five appointed members. The Commission has adopted a statewide Water Quality Management PLan, which is codified in the Oregon Administrative Rules.

The DEQ is responsible for review and action upon requests for Certification of Water Quality Compliance pursuant to Section 401 of the Federal Clean Water Act. Under a memorandum of understanding, the Oregon Department of Environmental Quality and Federal agencies work together to meet implementation requirements of the Clean Water Act (P.L. 92-500), as amended. The Federal Fish and Wildlife Coordination Act of 1958 requires wildlife conservation be given equal consideration and be coordinated with other features of water developments.

County Governments

The river corridor encompasses 1,070 acres of Harney County and 2,688 acres of Grant County. The county governments have primary responsibility for public safety and law enforcement within the corridor. Through cooperative law enforcement plans, federal funding for law enforcement is made available to the counties.

Appendix G

CORRIDOR BOUNDARY DECISION NOTICE
MARCH 3, 1990

DECISION NOTICE AND FINDING OF NO SIGNIFICANT IMPACT

MALHEUR WILD AND SCENIC RIVER BOUNDARY ESTABLISHMENT

PRAIRIE CITY RANGER DISTRICT
MALHEUR NATIONAL FOREST
PACIFIC NORTHWEST REGION

An Environmental Assessment that discusses proposed wild and scenic river boundary locations for the Malheur River is available for public review. The document may be reviewed at the Regional Forest Service Office, Portland, Oregon, the Malheur National Forest Supervisors Office, John Day, Oregon, and the Prairie City Ranger District, Prairie City, Oregon. The project is located on National Forest lands in Sections 3, 4, 9, 10, and 15 of T.18S., R.34E., Sections 7, 18, 19, 20, 29, 32, and 33 of T.17S., R.33 1/2 E., W.M., and on Private lands in Section 35 of T.16S., R.33 1/2 E. and Section 16 of T.18S., R34E., W.M.

It is my decision to select Alternative 3 as developed by the Interdisciplinary Team for the following reasons: a) it provides for protection of water sources to the river (side draws) through forest standards for protection of riparian areas and water quality; b) it includes the bench south of Black Canyon within the boundary to capture a primitive reaction opportunity; c) in excludes private land on the extreme north and south end of the designated portion of the river which do not enhance the value of the river; d) it locates the boundary to include the outstandingly remarkable scenic foreground, geologic features, and other features which enhance the value of the river corridor.

Alternative 3 proposes a boundary around approximately 3534 acreas and averages 299 acres/river mile. The designated portion of the river is approximatley 11.8 river mile in length.

Alternative 1 proposes a boundary around approximatley 4059 acres and averages 344 acres/river mile. This alternative was not selected because the boundary includes acres on the south end of the river corridor wich are not needed to preserve the outstandingly remarkable scenic and geologic values.

Alternative 2 proposes a boundary around approxmtely 3036 acres and averages 257 acres/river mile. This alternative was not selected because the boundary excludes the Black Canyon bench area which provides a primitive recreation opportunity in the river corridor.

Alternative 4 is the no action alternative and was not selected because the interim 1/4 mile boundary location does not effectively incorporate the outstandingly remarkable and significant values of this river corridor.

Based on the site-specific environmental analysis documented in the Environmental Assessment, I have determined that this is not a major Federal action that would significantly affect the quality of the human environment; therefore, an Environmental Impact Statement is not needed. This determination was made considering the following factors:

(1) There will be no significant irreversible resource commitments or irretrievable loss of timber production, wildlife habitats, soil production or water quality;

(2) Public health and safety are minimumally affected by the proposed actions;

(3) There are no known significant cumulative effects between this project and other projects implemented or planned withing this drainage;

(4) These actions do not set a precendent for the other projects that may be implemented to meet the goals and objectives of the Oregon Omnibus Wild and Scenic Rivers Act;

(5) Wetlands and floodplains within the proposed boundary location will not be significantly affected;

(6) All proposed endangered, threatened or sensitive species will not be affected;

(7) Based on public participation, the effects on the quality of human environment are not likely to be highly controversial;

(8) There are no known effects on the human environment that are highly uncertain or involve unique or unknown risks;

(9) The actions do not threaten a violation of federal, state, or local laws or requirements imposed for the protection of the environment; and

(10) The action will not result in the transfer, sale, demolition or substantial alteration of cultural resources.

Note: Through a clerical error, this document was not returned to the Malheur National Forest in a timely manner that allowed for adequate opportunity for public review. Therefore, this decision revokes earlier signing of this same decision notice.

This decision may be appealed in accordance with the provisions of 36 CFR 217 by filing a written notice of appeal within 45 days of the date of this decision. The appeal must be filed with F. Dale Robertson, Chief, USDA Forest Service, South Bldg., 12th and Independence Ave. S.W., P.O. Box 96090, Washington, D.C. 20090, Reviewing Officer, and a copy simultaneously sent to John F. Butruille, Regional Forester, USDA Forest Service, 318 S.W. Pine Street, P.O. Box 3623, Portland, Oregon 97208, Deciding Officer. The notice of appeal must include sufficient narrative evidence and argument to show why this decision should be changed or reversed. (36 CFR 217.9).

Dated: 3/5/90

JOHN F. BUTRUILLE
Regional Forester
Pacific Northwest Region

Published in the Blue Mountain Eagle 3/22/90

Appendix H

SECTION 7 REGIONAL ANALYSIS GUIDE

PROCEDURE TO
EVALUATE WATER RESOURCES PROJECTS

INTRODUCTION

This paper documents a procedure which can be uniformly and consistently applied by the Forest Service to determine whether proposed water resources projects present a direct and adverse affect to designated wild and scenic river values, and thus would be prohibited under Section 7 of the Wild and Scenic Rivers Act (the "Act"), or whether the projects should be allowed to proceed because they do not meet that threshold.

The procedure also applies to congressionally identified study rivers (Section "5a" rivers), which are afforded interim protection from projects which would affect "free-flow" characteristics in Section 7(b) of the Act. Although not protected from such projects in the Act, rivers identified for study through the land management planning process (Section "5d" rivers) are also afforded protection via agency policy (Forest Service Planning Handbook (1909.12, Chapter 8.12).

The procedure may also be applied to evaluate activities proposed outside a designated or study river corridor to determine if they result in indirect effects that "invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of designation," as referenced in Section 7 (a).

This procedure paper presumes a strict interpretation of what activities would qualify as water resources projects. Water resources projects have been defined in 36 CFR Part 297 as:

> "...any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act, or other construction of developments which would affect the free-flowing characteristics of a Wild and Scenic River or study river."

Section 16 (b) of the Act provides a definition of "free-flow" that assists in identification of water resources projects. It states:

> "Free-flowing, as applied to any river or section of a river, means existing or flowing in natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway."

Therefore, if a proposed activity would affect a river's free-flow, or meet other criteria outlined in 36 CFR 297, it qualifies as a water resources project and the Section 7 procedure defined in this paper can be applied.

ISSUE

The key issue, assuming that the proposed activity is identified as a water resources project, is whether the project presents a direct and adverse affect on the values for which the river was designated or is being studied (or if a proposed activity is above or below the area, does it unreasonably diminish the scenic, recreational, or fish and wildlife values)?

Lack of a standardized procedure to analyze effects has contributed to the difficulty of making an adequate analysis of water resource projects as required by Section 7, manual direction (FSM 2354), and the Forest Service Handbook (FSH 1909.12, Chapter 8). The balance of this paper describes a standardized analysis procedure that incorporates the following principles:

a. Effects will be judged in the context of the legislation designating the affected wild and scenic river and the management objectives for the river as defined in the comprehensive river management plan. (In the case of study rivers, effects are judged in the context of relevant Forest Plan standards and guidelines and the potential affect of the activity on the river's eligibility.)

b. Water resource projects are permissible if the net effect protects or enhances values for which the river was designated or is being studied. Water resource projects are not permitted if they have a direct and adverse effect on such river values. (In the case of study rivers management activities may be carried out provided they would not result in a reduced classification recommendation, and are consistent with other relevant Forest Plan standards and guidelines.)

c. Permissible water resources projects will, to the extent practicable, maintain or enhance the free flowing characteristics of the river.

d. Water resources projects may be permitted even though they may have an effect on free flowing characteristics if:

   (1) the specific purpose of the project is to protect or enhance the values for which the river was designated, restore the natural characteristics of the river, and/or improve the water quality of the river;

   (2) associated impacts on free flowing characteristics of the river are minimized to the extent practicable; and,

   (3) the proponent and manager of the project is a federal, state, or local governmental entity.

PROCEDURE

Background: In developing this procedure we recognize that:

- It is necessary to provide a temporal and spatial context for evaluating river related proposals. The wild and scenic river management planning process should result in a clear statement of long term management goals and objectives for free-flow, water quality, riparian areas and floodplains, and the outstandingly remarkable and other significant resource values designated by statute.

- Section 7 and promulgating rules (36 CFR 297) require an analysis of effects associated with a proposed water resources project. The analysis of activities deemed acceptable must clearly demonstrate consistency with management goals and objectives.

- Management of river ecosystems should be designed to achieve management goals and objectives through natural processes and use of techniques that mimic those processes. To insure that long term goals and objectives are met, careful analysis and evaluation of these processes, time scales, and public perceptions is necessary.

- State fish and wildlife agencies share responsibility with the Forest Service for fish and wildlife resources on wild and scenic river's. Identification and evaluation of water resource projects should be coordinated with the States, recognizing and supporting attainment of state fish and wildlife management objectives to the extent they are consistent with the outstanding values for which the river was designated or is being studied.

Step-by-Step Procedure: The following procedure is designed to evaluate proposed activities within a wild and scenic river ecosystem. This procedure is not simply one of disclosure. Rather, it is a framework to identify changes in free-flow conditions and evaluate the effects associated with project proposals.

1) Establish Need and Evaluate Consistency with Management Goals and Objectives. The first step is to define the need for the proposed activity and make a *preliminary* determination whether the proposed activity is consistent with the management goals and objectives for the river. Management goals provide the standard for evaluation of effects 1/. If the activity does not evidence a compelling need or is inconsistent with the management goals and objectives or other applicable laws (e.g. Wilderness Act, Endangered Species Act, etc.), the project may not be considered further.

1/ If management goals and objectives have not been formalized through a river planning process, utilize Forest Plan standards and guidelines and any applicable state fish and wildlife, water quality, or other state agency management plans or policies consistent with identified values, to develop objectives for each of the outstanding river values.

For projects that appear needed to help attain the management goals and objectives, proceed with the following steps. The scope of analysis should be commensurate with the magnitude and complexity of the project proposal. The procedure should be accomplished via an interdisciplinary team with adequate skills for the analysis. Note that each step requires some professional judgement.

2) Define the Proposed Activity. Provide an objective description of the proposed activity. The level of detail should be proportional to the scope of the proposed project and should indicate whether the project is isolated or part of a more complex or comprehensive proposal.

a. project proponent(s)
b. purpose (clearly describe the need for the project)
c. location
d. duration of proposed activities
e. magnitude/extent of proposed activities
f. relationship to past and future management

3) Describe How the Proposed Activity Will Directly Alter Within-Channel Conditions. Address the magnitude and spatial extent of the effects the proposed activity will have on in-channel attributes. Special attention should be given to changes in features which would affect the outstandingly remarkable and other significant resource values.

a. What is the position of the proposed activity relative to the stream bed and banks?
b. Does the proposed activity result in changes in:
    1. active channel location?
    2. channel geometry (i.e. cross-sectional shape or width/depth characteristics)?
    3. channel slope (rate or nature of vertical drop)?
    4. channel form (e.g. straight, meandering, or braided)?
    5. relevant water quality parameters (e.g. turbidity, temperature, nutrient availability)?

4) Describe How the Proposed Activity Will Directly Alter Riparian and/or Floodplain Conditions. Address the magnitude and spatial extent of the effects the proposed activity will have on riparian/floodplain attributes. Special attention should be given to changes in features that would affect the outstandingly remarkable and other significant resource values.

a. What is the position of the proposed activity relative to the riparian area and floodplain?

b. Does the proposed activity result in changes in:
    1. vegetation composition, age structure, quantity, vigor, etc.?
    2. relevant soil properties such as compaction, percent bare ground, etc.?
    3. relevant floodplain properties such as width, roughness, bank stability or susceptibility to erosion, etc.?

5) Describe How the Proposed Activity Will Directly Alter Upland Conditions. Address the magnitude and spatial extent of the effects the proposed activity will have on associated upland attributes. Special attention should be given to changes in features that would affect the outstandingly remarkable and other significant resource values.

a. What is the position of the proposed activity relative to the uplands?
b. Does the proposed activity result in changes in:
    1. vegetation composition, age structure, quantity, vigor, etc.?
    2. relevant soil properties such as compaction, percent bare ground, etc.?
    3. relevant hydrologic properties such as drainage patterns, the character of surface and subsurface flows, etc.?
c. Will changes in upland conditions influence archeological, cultural, or other identified significant resource values.

6) Evaluate and Describe How Changes In On-Site Conditions Can/Will Alter Existing Hydrologic or Biologic Processes. Evaluate potential changes in river and biological processes by quantifying, qualifying and modeling as appropriate.

a. Does the proposed activity affect:
    1. ability of the channel to change course, re-occupy former segments, or inundate its floodplain?
    2. streambank erosion potential, sediment routing and deposition, or debris loading?
    3. the amount or timing of flow in the channel?
    4. existing flow patterns?
    5. surface and subsurface flows?
    6. flood storage (detention storage)?
    7. aggradation/degradation of the channel?
b. Does the proposed activity affect biological processes such as:
    1. reproduction, vigor, growth and/or succession of streamside vegetation?

2. nutrient cycling?
3. fish spawning and/or rearing success?
4. riparian dependent avian species needs?
5. amphibian/mollusk needs?

7) Estimate the Magnitude and Spatial Extent of Potential Off-Site Changes. Address potential off-site, or indirect effects of the proposed activity, acknowledging any uncertainties (i.e., a risk analysis).

a. Consider and document:
1. changes that influence other parts of the river system.
2. the range of circumstances under which off-site changes might occur (e.g., as may be related to flow frequency).
3. the probability or likelihood that predicted changes will be realized.
b. Specify processes involved, such as water, sediment, movement of nutrients, etc.

8) Define the Time Scale Over Which Steps 3 - 7 are Likely to Occur.

a. Review steps 3 - 7 looking independently at the element of time.
b. Consider whether conditions, processes and effects are temporary or persistent. That is, attempt to define and document the time scale over which effects will occur.

9) Compare Project Analyses to Management Goals and Objectives. Based on the analysis of steps 3-8, identify project effects on achievement, or timing of achievement, of management goals and objectives relative to free-flow, water quality, riparian area and floodplain conditions, and the outstandingly remarkable and other significant resource values.

10) Section 7 Determination. Based on the analysis of steps 3-9 document:

a. effects of the proposed activity on conditions of free-flow, including identification of the measures taken to minimize those effects.
b. any direct and adverse effects on the outstandingly remarkable and other significant resource values for which the river was designated or is being studied.
c. any unreasonable diminishing of scenic, recreational, or fish and wildlife values associated with projects above or below the area.

The determination should permit those water resource projects that are consistent with the legislation designating the affected wild and scenic river and the management objectives for the river as defined in the comprehensive river management plan, *or* in the case of study rivers, the proposed activities would not result in a reduced classification recommendation and is consistent with Forest Plan standards and guidelines. Permissible water resources projects will, to the extent practicable, maintain or en-

hance the free flowing characteristics of the river. Water resource projects that have a direct and adverse effect on designated river values or management objectives are not to be permitted.

It is important to note that water resources projects may be permitted even though they may have an effect on free flowing characteristics if:

a. the specific purpose of the project is to protect or enhance the values for which the river was designated, restore the natural characteristics of the river, and/or improve the water quality of the river;

b. the associated impacts on free flowing characteristics of the river are minimized to the extent practicable; and,

c. the proponent and manager of the project is a federal, state, or local governmental entity.

Include the Section 7 determination as part of the broader NEPA analysis of the proposed activity. See the following section for additional information on the relationship of Section 7 determinations and the NEPA process.

INCORPORATION OF SECTION 7 DETERMINATIONS IN THE NEPA PROCESS

The Code of Federal Regulations states:

"The determination of the effects of a proposed water resources project shall be made in compliance with NEPA."

The following discussion offers more specific information regarding incorporation of the Section 7 procedure into the NEPA process. It also includes information relating to the decision document and the responsible official.

A proposed water resources project may be an independent project such as watershed or fish habitat restoration or construction of a boat ramp or fishing pier, or part of a larger program that serves a variety of purposes. In either situation, the Section 7 procedure is to be completed as a separate analysis by an interdisciplinary team. For designated rivers (Section 3a) and congressionally identified study rivers (Section 5a), the Section 7 procedure would be explicitly documented in, or appended to the NEPA document with appropriate reference in the NEPA analysis. Similarly, for rivers identified for study via the land management planning process (Section 5d), an analysis as to the potential effect of a proposed project on free-flow and the outstandingly remarkable values should be incorporated, appended, or available in the analysis file.

The decision document will describe the Section 7 determination for the preferred alternative for a designated or congressionally identified study river. This determination should state whether the proposed project will affect free-flow characteristics, whether it will or will not have a "direct and adverse effect on the values for which the river was designated" (or might be added to the System), or whether proposed projects above or below the area will "unreasonably diminish" those resource values. The Section 7 evaluation may result in identification of water-resources projects which protect, restore or enhance the values for which the river was designated or identified for study. In approval of such projects, the decision notice should clearly indicate that determination.

For study rivers identified via the land management planning process (i.e. Section 5d rivers), utilize the Section 7 procedure with the decision document referencing that an analysis was conducted to evaluate the potential effect of the proposed project on free-flow and the outstandingly remarkable values. Note, that Section 7 is not required for 5d rivers, but agency policy (FSH 1909.12 8.12) provides direction to protect the free-flowing condition and outstandingly remarkable values.

The responsible official differs with the status of the river and whether or not another federal agency is involved. For proposed water resources projects on a 3a or 5a river, in which there is another federal agency "assisting by loan, grant, license or otherwise...," the Regional Forester is the responsible official (reference FSM 2354.04e). If there is no other federal agency "assistance" for a project on a 3a or 5a river, the appropriate line officer signs the decision document. Decision documents for water resources projects on a 5d river are signed by the appropriate line officer.

REGIONAL OVERSIGHT

The Regional Offices are to provide for review of the Section 7 analysis completed for proposed water resources projects. This review process should be coordinated by the Recreation staff group and involve other appropriate staff areas such as fisheries, watershed, engineering, etc. The intent of this oversight is to ensure a consistent approach to the evaluation of proposed water resources projects in wild and scenic rivers. The review is not intended to make the final decision.

SUMMARY

These procedures were developed to analyze projects that have the potential to affect the free-flowing condition and/or outstandingly remarkable values of designated and study wild and scenic river's and determine which projects are consistent with the Act by protecting, restoring, and enhancing those river values. The scope of the analysis will vary with the magnitude and complexity of the proposed activity. The procedure requires interdisciplinary analysis and application of professional judgement within the requirements of the Act.

Examples of projects that would likely be subject to Section 7 analysis include, but are not limited to:

1. Log removal for recreation user safety;
2. Fisheries habitat and watershed restoration and enhancement projects;
3. Bridge and other roadway construction/reconstruction projects;
4. Bank stabilization projects;
5. Recreation facilities such as boat ramps and fishing piers;
6. Activities that require 404 permits from the Corps of Engineers.

Appendix I

LEGISLATION ABSTRACT

ABSTRACT OF RELEVANT LEGISLATION, REGULATIONS, MANUAL AND HANDBOOK DIRECTION, LEGAL OPINION AND CONGRESSIONAL DIRECTION RELATED TO WATER RESOURCES PROJECTS

WILD AND SCENIC RIVERS ACT

P.L. 90-542, Section 1(b):

"It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes."

P.L. 90-542, Section 7(a):

Section 7 provides specific protection of designated and congressionally identified study rivers by prohibiting the licensing "...of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act." Additionally this section states:

"...no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration."

The section also addresses federal agency limitations on licensing or assisting in developments below or above designated or proposed W&SR's that "invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area..."

P.L. 90-542, Section 10(a):

Section 10(a) states Congressional intent for management to protect and enhance those values for which a river was designated (or is being studied). The section calls

for development of management plans with specific objectives that are based on the special values of the particular river. Specifically:

"Each component of the national Wild and Scenic Rivers System shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public uses and enjoyment of these values. In such administration primary emphasis shall be given to protecting its esthetic, scenic, historic, archeologic, and scientific features. Management plans for any such component may establish varying degrees of intensity for its protection and development, based on special attributes of the area."

P.L. 90-542, Section 12(a):

Section 12 sets forth broad authority for management policies on federal lands "which include, border upon, or are adjacent to, any river included in the National Wild and Scenic Rivers System or under consideration for such inclusion, in accordance with section 2(a)(ii), 3(a), or 5(a)..." directing them to "take such action respecting management policies, regulations, contracts, plans...as may be necessary to protect such rivers in accordance with the purposes of this Act."

P.L. 90-542, Section 16(b):

"Free-flowing, as applied to any river or section of a river, means existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion shall not automatically bar its consideration for such inclusion: *Provided*, That this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the national Wild and Scenic Rivers System."

CODE OF FEDERAL REGULATIONS

36 CFR 297 - Regulations for Implementing Section 7 of the Wild and Scenic Rivers Act:

"Water resources projects" have been defined in 36 CFR 297 as:

"...any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act, or other construction of developments which would affect the free-flowing characteristics of a Wild and Scenic River or study river."

"These regulations require that a determination of the direct and adverse effects of a proposed project be completed through the NEPA process."

INTERAGENCY GUIDELINES FOR ELIGIBILITY, CLASSIFICATION AND MANAGEMENT OF RIVER AREAS - September 7, 1982

Section III - Management:

"Other Resource Management Practices. Resource management practices will be limited to those which are necessary for protection, conservation, rehabilitation or enhancement of the river area resources. Such features as trail bridges, fences, water bars and drainage ditches, flow measurement devices and other minor structures or management practices are permitted when compatible with the classification of the river area and provided that the area remains natural in appearance and the practices or structures harmonize with the surrounding environment."

This section establishes a nondegradation and enhancement policy for all designated river areas. Each component of the W&SR's system is to be managed to protect and enhance the values for which the river was designated, while providing for public recreation and resource uses which do not adversely impact or degrade those values. This guideline specifically identifies three criteria for evaluation of proposed activities that are consistent with the analysis called for in Section 7 of the Act, namely: 1) compatibility with the values for which the river was designated; 2) no impact on natural appearance; and, 3) harmonize with the surrounding environment.

FOREST SERVICE MANUAL

FSM 2354.04e

"Regional Foresters shall: Determine the direct and adverse effects of water resource projects upon designated or study wild and scenic rivers, and determine, pursuant to section 7 of the Wild and Scenic Rivers Act, whether the Department of Agriculture will consent to a proposed action (36 CFR 297). This authority shall not be redelegated..."

FSM 2354.42b

"Manage wildlife and fish habitats in a manner consistent with the other recognized river attributes."

"Recommendations to State agencies concerning the management of fisheries must be consistent and in harmony with established river objectives.

"The construction of minor structures for such purposes as improvement of fish and game habitat are acceptable in wild river areas provided they do not affect the free-flowing characteristics of the river and harmonize with the surrounding environment."

The last portion of this manual direction suggests that any fish and wildlife habitat improvement project which would affect conditions of free-flow are not acceptable in wild rivers. However, the primary factor in determining the acceptability of proposed fish and wildlife habitat management projects within Wild and Scenic River corridors is whether or not they have a direct and adverse affect on the values for which the river was designated (or is being studied). Water resources projects which do not directly and adversely affect the values for which the river was designated, or is being studied, are acceptable. Those projects that are incompatible with the outstanding values of the river corridor are not acceptable.

FOREST SERVICE HANDBOOK

FSH 1909.12, Chapter 8.12

"1. To the extent the Forest Service is authorized under law to control stream impoundments and diversions, the free-flowing characteristics of the identified river cannot be modified."

"3. Management and development of the identified river and its corridor cannot be modified to the degree that eligibility or classification would be affected..."

FSH 1909.12, Chapter 8.2

"1. Standards for Wild Rivers...

d. Flood Control: No flood control dams, levees, or other works are allowed in the channel or river corridor. The natural appearance and essentially primitive character of the river areas must be maintained...

i. Structures: ...New structures would not be allowed except in rare instances to achieve management objectives (i.e. structures and activities associated with fisheries enhancement programs could be allowed.)"

"2. Standards for Scenic Rivers...

i. Structures: ...New structures that would have a direct and adverse effect on river values would not be allowed."

"3. Standards for Recreational Rivers...

i. Structures: ...New structures are allowed for both habitation and for intensive recreation use."

LEGAL OPINION

A May 1979 memorandum to the Chief from Clarence W. Brizee (Deputy Director, Forestry Natural Resources Division; USDA, OGC) provides the following interpretation, which is consistent with our current understanding:

> "With regard to water resources projects, the Wild and Scenic Rivers Act is not a blanket ban or absolute prohibition... The only activity absolutely prohibited by Section 7 is the licensing of dams and other project works by the Federal Energy Regulatory Commission under the Federal Power Act within the boundaries of a designated or study river. Other federally assisted water resources projects may be permitted. Thus, rather than being characterized by absolute prohibitions, the Act embodies a flexible approach. Section 7 establishes a procedure for making a specific determination with respect to each proposed water resources project."
>
> Mr. Brizee continues: "The evolution of Section 7 demonstrates that Congress did not intend that the Act automatically ban all developments and uses on or near a (study or designated) river. To the contrary, the legislation was specifically amended in order to provide a procedure via Section 7 for review of proposed water resources projects on a case-by-case basis."
>
> Deputy Director Brizee further states, "even though water resources projects will be reviewed on a case-by-case basis, the Act is strict as to what is allowable. This Department and the Department of the Interior have defined "water resources project" in a broad context. That is, a water resources project is any type of construction which would result in any change in the free-flowing characteristics of a particular river... This concept of water resources projects has been applied to dredge and fill permits under Section 404 of the Clean Water Act, construction of levees, removal of navigational hazards, construction of nuclear power plants, and other such diverse projects."

This memorandum also offers an interpretation of the "direct and adverse effect standard":

> "The Department of Agriculture interpreted the "direct and adverse effect" standard, and the "unreasonably diminish" standard in the context of a Section 7 determination for a nuclear power project on the banks of the Skagit W&SR. The discussion in that determination indicates that a flexible approach is possible.
>
> With regard to projects inside the designated boundary, there is no definition provided by the Act or legislative history as to what constitutes such a "direct and adverse" effect. We do not construe this section as a ban on all projects which might be built on a river proposed or designated as a component of the System. Rather, the Act contemplates that each proposed project be considered on its own merits. In making this determination, we consider the values of the river as they now exist; a "direct and adverse" effect is one which will result in marked dimunitions of the values enumerated in Section 1(b) of the Act. Also relevant to the consideration of the project's impacts is the degree to

which it blends in or is otherwise compatible with the natural qualities of the river, whether there may be a dimunition in the air and water quality, and the effects on animals and vegetation. The duration of the impact is another important consideration; long lasting or permanent impacts must be viewed more strictly than temporary or short term impacts."

CONGRESSIONAL DIRECTION

The most recent Congressional direction on management of wild and scenic rivers is associated with the Michigan Scenic Rivers Act of 1991 (H.R. 476) dated November 23, 1991. The Senate Committee on Energy and Natural Resources report on the Michigan Scenic Rivers Act states:

> "The Committee is aware of the concern expressed by some parties of the potential effect that designation of certain rivers as components of the Wild and Scenic Rivers System may have on ongoing stream restoration and improvement projects in the State of Michigan. The Committee notes the importance of these projects in restoring damaged riparian areas and improving water quality and aquatic habitat. In the Committee's view, such projects are not inconsistent with Wild and Scenic River designation, and in fact similar projects have been successfully completed on Wild and Scenic River segments throughout the nation. The Committee directs the Forest Service to develop a consistent and coordinated policy permitting the implementation of such projects within Wild and Scenic River segments in order to avoid unnecessary concern and confusion."

In similar fashion, the House Committee on Interior and Insular Affairs report on the Michigan Scenic Rivers Act states:

> "The committee has provided flexibility with regards to sea lamprey control in order that appropriate management actions can be taken consistent with the requirements of law. In keeping with sound management practices for wild and scenic rivers, the Committee believes there is appropriate flexibility in law to provide for fish and wildlife habitat and water quality improvement in a manner that will protect the values for which a river segment was designated. Some of the finest fisheries in the country are found on rivers designated as part of the National Wild and Scenic Rivers System. The Committee recognizes the importance of the fisheries on the Michigan rivers designated by this Act and is supportive of efforts to correct significant water quality, aquatic habitat or other ecological degradation caused by past human activity. The Wild and Scenic Rivers Act permits structural and non-structural techniques of fish restoration to be used as long as such activities do not have an adverse impact on the values for which such rivers are designated. Such activities consistent with this standard are occurring on wild and scenic rivers across the country. As provided for by law, the Secretary will cooperate with the state on these matters."