APPENDIX E

GENERAL RECOMMENDATIONS FOR RARE COMMUNITIES

MANAGEMENT PRESCRIPTION 9.F

EMPHASIS

Rare communities are assemblages of plants and animals that occupy a small portion of the landscape, but contribute significantly to plant and animal diversity. They generally are limited in number of occurrences, are small in size, and have relatively discrete boundaries. Rare communities, wherever they occur on the forest, will be managed under this prescription to ensure their contribution to meeting goals for community diversity, endangered and threatened species recovery, and species viability. All known rare community sites are allocated to this prescription. As new rare community sites are found, they will be added to this prescription without plan amendment, unless such additions would result in large shifts in land allocation or expected benefits and outputs.

DESIRED CONDITION

Rare communities exhibit the composition, structure, and function necessary to support vigorous populations of species characteristic of the community, including relevant federally-listed threatened and endangered species, and species at risk of losing viability. Ecological disturbances are at the frequency and intensity needed to maintain desired composition, structure, and function. Generally, natural forces are sufficient to maintain these conditions; however, in some cases environmental factors have changed to the extent that natural processes are prevented or hindered from maintaining the community. In these cases, management activities used to restore or maintain desired conditions, such as prescribed burning or vegetation cutting, may be evident.

Beyond restoration and maintenance activities, human-caused alteration of rare communities is not evident. Recreational access may be limited by signs and barriers where necessary to protect community integrity. Interpretive signs or other

information may be made available where it is likely to promote public knowledge of rare communities and improve community protection.

COMMUNITIES

The following rare communities are covered by this prescription:

WETLAND COMMUNITIES

Appalachian Highlands Bogs, Fens, Seeps, and Ponds

These rare communities are characterized by 1) soils that are semi-permanently to permanently saturate as a result of groundwater seepage, perched water tables, rainfall, or beaver activity, but otherwise are generally non-alluvial, and 2) presence of wetland-associated species such as sphagnum, ferns, and sedges. Dominant vegetation may be herbs, shrubs, trees, or some complex of the three. Ponds in this group include limesink, karst, and depression ponds, which may hold areas of shallow open water for significant portions of the year. Also included are all impoundments and associated wetlands resulting from beaver activity. Artificial impoundments are not included, unless they support significant populations or associations of species at risk. These communities may be found in both the Appalachian and Piedmont regions. Primary management needs are protection from non-target management disturbance and resource impacts, particularly to local hydrology. Periodic vegetation management may be necessary to maintain desired herbaceous and/or shrubby composition at some sites. These communities include Mafic and Calcareous Fens, Sphagnum and Shrub Bogs, Swamp Forest-Bog Complex, Mountain Ponds, Seasonally Dry Sinkhole Ponds, and Beaver Pond and Wetland Complex as defined in the Southern Appalachian Assessment (SAMAB 1996), and all Associations within the following Ecological Groups as defined by NatureServe (2001a):

458-15	Appalachian Highlands Wooded Depression Ponds
458-20	Appalachian and Interior Highlands Limesink and Karst Wooded Ponds
470-10	Appalachian Highlands Forested Bogs
470-20	Appalachian Highlands Forested Acid Seeps
470-50	Appalachian Highlands Forested Fens and Calcareous Seeps
475-10	Appalachian Highlands Acid Herbaceous Seeps
475-20	Appalachian Highlands Alkaline Herbaceous Fens and Seeps
475-30	Appalachian and Interior Highlands Herbaceous Depression Ponds and Pond shores

Appalachian Highlands Riverine Vegetation

These rare communities are characterized by 1) sites adjacent to or within stream channels that are exposed to periodic flooding and scour, and 2) presence of significant populations or associations of species at risk. These communities may be

found in both Appalachian and Piedmont regions. Primary management needs are protection from disturbance during development of road crossings, and maintenance of desirable in-stream flows. These communities include River Gravel-Cobble Bars as defined in the Southern Appalachian Assessment (SAMAB 1996), and the rare Associations within the following Ecological Groups as defined by NatureServe (2001a):

457-10 Appalachian Highlands Riverine Vegetation
457-30 Rocky Riverbeds
457-40 Appalachian Highlands Riverscour Vegetation

FOREST COMMUNITIES

Carolina Hemlock Forest

This community is characterized by a dominant or significant component of Carolina hemlock (*Tsuga caroliniana*) in the overstory. It is found in the Appalachian region. Primary management needs are maintenance and expansion of existing occurrences; however, vegetation management needed to meet these needs is not clear at this time. This community includes Carolina Hemlock Forest as defined in the Southern Appalachian Assessment (SAMAB 1996), and all Associations within the following Ecological Group as defined by NatureServe (2001a):

401-20 Appalachian Highlands Carolina Hemlock Forests

Table Mountain Pine Forest and Woodland

This community is characterized by a dominant or significant component of table mountain pine (*Pinus pungens*) in the overstory often in combination with pitch pine (*Pinus rigida*). It is found in the Appalachian region. Primary management needs are maintenance and expansion of existing occurrences, using thinning and prescribed fire. This community corresponds to Table Mountain Pine/Pitch Pine Woodlands as defined in the Southern Appalachian Assessment (SAMAB 1996), and all Associations within the following Ecological Group as defined by NatureServe (2001a):

401-80 Appalachian Highlands Pitch and Table Mountain Pine Woodlands

Spruce-Fir Forests

This community is characterized by a dominant or significant component of Fraser fir (*Abies fraseri*) and/or red spruce (*Picea rubens*) in the overstory. It is found in the Appalachian region. The Rare Community Prescription applies only to a network of core areas identified in the forest plan. These core areas include all major patches and known occurrences of species at risk. Primary management needs are maintenance of existing occurrences, and restoration in areas where this community likely once occurred, primarily in adjacent cleared grassy areas or northern hardwood forests. Maintenance and restoration activities are not well established. This community is severely threatened by multiple factors including the balsam woolly

adelgid and acid deposition. This community corresponds to Spruce-Fir Forests as defined in the Southern Appalachian Assessment (SAMAB 1996), and all Associations within the following Ecological Group as defined by NatureServe (2001a):

410-10 Appalachian Highlands High Elevation Spruce-Fir Forests

Beech Gap Forests

This community is characterized by canopies dominated by American beech (*Fagus grandifolia*) on steep slopes near mountain gaps above 4,500 feet. Trees may be stunted; shrub layers are typically sparse and herbaceous growth dense. This community is found in the Appalachian region. Primary management needs are protection from non-target management disturbance and recreational impacts. This community corresponds to Beech Gap Forest as defined in the Southern Appalachian Assessment (SAMAB 1996), and the following Associations defined by NatureServe (2001a, 2001b):

CEGL006246 Southern Appalachian Beech Gap (North Slope Tall Herb Type)
CEGL006130 Southern Appalachian Beech Gap (South Slope Sedge Type)

Basic Mesic Forests

These communities are characterized by closed-canopy deciduous overstories and rich and diverse understories of calciphilic herbs, underlain by high-base geologic substrates. On moderate to high elevation sites, these communities are typically found in protected coves, and can be distinguished from more acidic mesic cove forests by the abundance of species such as white basswood (*Tilia americana*), yellow buckeye (*Aesculus flava*), black walnut (*Juglans nigra*), faded trillium (*Trillium discolor*), sweet white trillium (*Trillium simile*), black cohosh (*Cimicifuga racemosa*), blue cohosh (*Caulophyllum thalictroides*), whorled horsebalm (*Collinsonia verticillata*), mock orange (*Philadelphus inodorus*), sweet shrub (*Calycanthus floridus*), sweet cicely (*Ozmorhiza* spp.), doll's eyes (*Actaea racemosa*), maidenhair fern (*Adiantum pedatum*), and plantain-leaved sedge (*Carex plantaginea*). Good examples of moderate and high elevation basic mesic forests have a low incidence of white pine (*Pinus strobus*), eastern hemlock (*Tsuga canadensis*), rhododendron (*Rhododendron* spp.), and Christmas fern (*Polystichum acrostichoides*). An oak-dominated variant of moderate to high elevation basic mesic forest occurs over limestone on upper to mid slopes of the Interior Plateau of Tennessee, the Cumberlands of Alabama, and the Ridge and Valley of Georgia. This basic mesic community is dominated or co-dominated by shumard oak (*Quercus shumardii*) or chinquapin oak (*Quercus muehlenbergii*), in combination with various species of oaks and hickories and either sugar maple (*Acer saccharum*), chalk maple (*Acer leucoderme*), or southern sugar maple (*Acer barbatum*). Typical calciphilic understory species also are present. On lower elevation sites, these communities are more typically found on north slopes, where dominant and characteristic overstory species are American beech (*Fagus grandifolia*) and northern red oak (*Quercus rubra*), with tulip poplar (*Liriodendron tulipifera*), white oak (*Quercus alba*), shagbark hickory (), or white ash (), with southern sugar maple, chalk maple, painted buckeye (*Aesculus sylvatica*), and pawpaw (*Asimina triloba*) in the midstory and shrub layers, and

understories that include faded trillium, nodding trillium (*Trillium rugelii*), black cohosh, doll's eyes, foam flower (*Tiarella cordifolia var. collina*), bloodroot (*Sanguinaria canadensis*), bellworts (*Uvularia sp.*) and trout lilies (*Erythronium spp.)*. Good examples of low elevation basic mesic forests have a low incidence of sweetgum (*Liquidambar styraciflua*), loblolly pine (*Pinus taeda*), and exotics such as Japanese honeysuckle (*Lonicera japonica*) or Chinese privet (*Ligustrum vulgare*). Basic mesic forest communities are found in both the Appalachian and Piedmont regions. Only prime examples of these communities, as identified in the forest-wide rare community database, are managed under the Rare Community Prescription. Primary management needs are protection from nontarget management disturbance. This community includes the following Associations defined by NatureServe (2001a, 2001b):

CEGL007711	Southern Appalachian Cove Forest (Rich Foothills Type),
CEGL007695	Southern Appalachian Cove Forest (Rich Montane Type),
CEGL008442	Shumard Oak-Chinquapin Oak Mesic Limestone Forest
CEGL008466	Basic Piedmont Mesic Mixed Hardwood Forest
CEGL008488	Southern Ridge and Valley Basic Mesic Hardwood Forest
CEGL004542	Piedmont Rocky Mesic Mafic Forest.

CLIFFS AND ROCK OUTCROPS

Talus Slopes

This community is characterized by non-vegetated or sparsely vegetated accumulations of rock at 2,500 to 4,600 feet elevation. It is found in the Appalachian region. It is distinguished from Forested Boulderfields by the lack its lack of trees. It is distinguished from rocky summits by its occurrence on side slopes as opposed to ridges and peaks. Primary management needs are protection from non-target management disturbance. This community includes Talus Slopes as defined in the Southern Appalachian Assessment (SAMAB 1996), and all Associations within the following Ecological Group as defined by NatureServe (2001a):

430-10	Eastern Acid Talus

Forested Boulderfields

This community is characterized by rock fields, found at 3,500 to 5,300 feet elevation, that support a variable density of trees, typically dominated by yellow birch. It is distinguished from talus slopes by the presence of trees. It is found in the Appalachian region. Primary management needs are protection from nontarget management disturbance. This community includes Boulderfields as defined in the Southern Appalachian Assessment (SAMAB 1996), and the following Associations as defined by NatureServe (2001a, 2001b):

CEGL004982	Southern Appalachian Hardwood Boulderfield Forest (Typic Type)
CEGL006124	Southern Appalachian Boulderfield Forest (Currant and Rockcap Fern Type)

Cliffs and Bluffs

These communities are characterized by steep, rocky, sparsely-vegetated slopes, usually above streams or rivers. Cliff communities may be dry or wet, and include communities associated with waterfalls, such as spray cliffs and rock houses. These communities are found in the Appalachian region. Primary management needs are protection from management disturbance and maintenance of hydrology near wet cliffs. This community includes Calcareous Cliffs, Mafic Cliffs, Sandstone Cliffs, and Spray Cliffs as defined in the Southern Appalachian Assessment (SAMAB 1996), and all Associations within the following Ecological Groups as defined by NatureServe (2001a):

430-40	Eastern Dry Acid Cliffs
430-45	Eastern Moist Acid Cliffs
430-50	Eastern Dry Alkaline Cliffs
430-55	Eastern Moist Alkaline Cliffs
430-60	Appalachian Highlands Northern White-Cedar Bluffs
430-65	Appalachian Highlands Rock Houses

Rock Outcrops

These communities are characterized by significant areas of exposed, usually smooth, exfoliating granite or related rocks, with scattered vegetation mats and abundant lichens. These communities are found in both the Appalachian and Piedmont regions. Primary management needs are protection from nontarget management disturbance and recreational impacts. This community includes Granitic Dome and Granitic Flatrock as defined in the Southern Appalachian Assessment (SAMAB 1996), and all Associations within the following Ecological Groups as defined by NatureServe (2001a):

435-10	Appalachian Highlands Granitic Domes
435-20	Appalachian Highlands Granitic Flatrock

Rocky Summits

This community is characterized by sparsely vegetated outcrops of fractured, irregular rock found above 4,000 feet elevation on peaks, ridges, and upper slopes. It is distinguished from rock outcrop communities by its fractured, irregular rock surface, and from talus slopes and cliff communities by its topographic position on or near summits. It differs from forested boulderfields in its general lack of forest cover. This community is found in the Appalachian region. Primary management needs are protection from recreational impacts. This community includes High Elevation Rocky Summits as defined in the Southern Appalachian Assessment (SAMAB 1996), and all Associations within the following Ecological Group as defined by NatureServe (2001a):

436-30	Appalachian Highlands Rocky Summits

OTHER COMMUNITIES

Glades, Barrens, and Associated Woodlands

These communities are characterized by thin soils and exposed parent material that result in localized complexes of bare soil and rock, herbaceous and/or shrubby vegetation, and thin, often stunted woods. During wet periods they may include scattered shallow pools or areas of seepage. They vary widely in species composition depending on the type of underlying parent material. They differ from rock outcrop communities by exhibiting some level of soil and vegetation over the majority of the site. Field delineations should include the entire complex of characteristic vegetation composition and structure. These communities may be found in both Appalachian and Piedmont regions. Primary management needs are protection from non-target management disturbance and recreational impacts. Periodic vegetation management, especially prescribed fire, may be necessary to maintain or restore desired herbaceous and/or shrubby composition. These communities include Calcareous Woodlands and Glades, Mafic Woodlands and Glades, Serpentine Woodlands and Glades, and Shale Barrens as defined in the Southern Appalachian Assessment (SAMAB 1996), and the rare Associations within the following Ecological Groups as defined by NatureServe (2001a):

401-17	Appalachian Highlands Calcareous/Circumneutral Dry-Mesic Hardwood Forests and Woodlands
440-05	Appalachian Highlands Carbonate Glades and Barrens
440-10	Interior Highlands Carbonate Glades and Barrens
440-25	Appalachian Sandstone Glades and Barrens
440-40	Appalachian Shale Glades and Barrens
440-65	Appalachian Serpentine Woodlands
440-80	Appalachian Mafic Igneous/Metamorphic Glades and Barrens

Balds

These communities are of two types: grassy balds and shrub (or heath) balds. Grassy balds are characterized by extensive areas dominated by herbaceous vegetation at high elevations (generally above 5,000 feet). They generally are found on ridge tops, domes, and gentle slopes. Shrub balds are typically found on steep exposed slopes and ridges at elevations ranging from 2,000 to 6,500 feet, and are characterized by dominance of ericaceous shrubs. These communities are found in the Appalachian region. Primary management needs are protection from recreational impacts and maintenance of desired vegetation using a variety of methods. This community includes Grassy Balds and Heath Balds as defined in the Southern Appalachian Assessment (SAMAB 1996), and all Associations within the following Ecological Groups as defined by NatureServe (2001a):

436-10	Appalachian Highlands Grassy Balds
436-20	Appalachian Highlands Shrub Balds

Patch Prairies and Grasslands

These communities occur on dry upland sites and are characterized by dominance of grasses and herbs, though scattered trees may be present. These communities represent remnants of naturally occurring grasslands historically maintained by fire and other natural forces, as opposed to old fields. Provisions of the Rare Community Prescription apply only to prime examples that support significant populations or associations of species at risk. Other natural grasslands will be restored and maintained within complexes of open woodlands. These communities are found in both the Appalachian and Piedmont regions. Primary management needs are maintenance and restoration using a variety of vegetation management methods including prescribed fire. These communities include all Associations within the following Ecological Groups as defined by NatureServe (2001a):

445-10 Interior Highlands Patch Prairies and Grasslands

Canebrakes

This community is characterized by almost monotypic stands of giant or switch cane (*Arundinaria gigantea*), usually with no or low densities of overstory tree canopy. It is typically found in bottomlands or stream terraces. Although cane is found commonly as an understory component on these sites, provisions of the Rare Community Prescription apply only to larger patches (generally greater than 0.25 acres) exhibiting high densities that result in nearly monotypic conditions, or to areas selected for restoration of such conditions. This community is found in the Appalachian, Piedmont, and Coastal Plain regions. Primary management needs are restoration and maintenance through overstory reduction and periodic prescribed fire. Although several Associations described by NatureServe (2001a, 2001b) include cane as a major component, this community most closely corresponds to:

CEGL003836 Floodplain Canebrake

Caves and Mines

This community is characterized by natural and human-made openings in the ground that extend beyond the zone of light, creating sites buffered in relation to the outside environment. Included are karst and sinkhole features that lead to such subterranean environments. Provisions of the Rare Community Prescription apply only to those sites supporting cave-associated species. This community is found in the Appalachian region. Primary management needs are protection from non-target management disturbance and recreational impacts, and maintaining quality of water flowing into underground streams.