

FOREST MANAGEMENT DIRECTION

INTRODUCTION

The management direction in this chapter guides all natural resource management practices and establishes the management standards and guidelines for the Forest over the next 10 to 15 years. Management direction includes goals, objectives, Forest-wide standards and guidelines, management prescriptions with their specific standards and guidelines, and delineations of the management areas.

Direction is responsive to the requirements of NFMA. Each of the management requirements in 219.27 (NFMA) is addressed by Forest-wide or management prescription standards and guidelines. Those resources discussed in 219.13 through 219.26 are addressed by Forest-wide or management prescription standards and guidelines.

FOREST MANAGEMENT GOALS

The following multiple use and resource management goals are sought through the implementation of this Forest Plan.

Multiple Use Management Goals

Develop a cost efficient multiple use program which responds to overall resource demand while effectively resolving or mitigating issues and concerns.

Ensure changes in demand trends and local economies are recognized and the need for program adjustment adequately considered during the 10-15 year plan period.

Integrate ecological management principles into Forest resource programs.

Complete Phase II and III inventory and condition surveys for threatened, endangered, rare, and sensitive plants.

Distribute programs geographically to make effective use of the diverse ecological capability found on the Forest.

Provide a natural appearing environment that accommodates a variety of public use.

Establish only those controls on users that are essential to meet management area objectives, to protect resources, and to provide for public health and safety.

Recreation Management Goals

Implement the Recreation Opportunity Spectrum (ROS) as the primary system for characterizing, locating and managing recreation opportunities.

Recognize and manage unique natural environments so they will be perpetuated for future use and enjoyment. Seek the highest order classification for each potential or existing candidate area, including research natural area status.

*Provide for recreation activities that provide a wide range of recreation opportunities. Emphasize dispersed use and activities suited to large areas of public land, as well as quality developed sites that meet the needs and desires of the recreating public, while protecting the other resources, and balancing with agency mission.

Implement the Scenery Management System (SMS) to ensure a high quality scenery resource.

Manage the Eleven Point National Scenic River to achieve Scenic River objectives and mitigate public issues.*

Wilderness Management Goals

Implement the Wilderness Opportunity Spectrum (WOS) as the primary system for characterizing, locating, and managing the Wilderness resource.

Establish management policies that ensure protection of the Wilderness resource while complementing user objectives.

Provide for the use of prescribed fire as a management tool to perpetuate fire dependent ecosystems found within the Hercules Glade Wilderness when approved by the Chief of the Forest Service thru a change in, or exception to, National Wilderness Policy.

***Heritage Resource Program Management Goals**

Implement the dual heritage resource management programs of Forest project support services and heritage stewardship.

Support Forest ecosystem management activities through compliance with Federal mandates to identify, evaluate, enhance, protect, and manage heritage sites, structures, and collections.

Promote stewardship through preserving and restoring selected heritage sites for education, use, and enjoyment by current and future visitors. Provide diverse opportunities for Forest users to explore the cultural heritage of Missouri's Ozarks.

Recognize the interdisciplinary nature of heritage values and the potential for gaining scientific knowledge in order to manage heritage resources effectively and integrate with ecosystem management.

Allocate resources to provide for the identification, protection, scientific use, and interpretation of heritage resources.*

Wildlife Management Goals

Qualify, quantify and provide habitat for indicator species.

Manage habitat found on the Mark Twain National Forest to at least maintain viable populations of all existing native and desired non-native vertebrates.

Provide a habitat management program that responds to the demand for both consumptive and nonconsumptive fish and wildlife use.

Provide for wildlife species requiring specialized habitat including those recognized by both Federal and State authorities as being threatened, endangered, rare or sensitive.

Provide for recovery of federally endangered and threatened species by following reasonable and prudent measures outlined in any biological opinion issued by USFWS as a result of formal consultation.

***Fisheries Management Goals**

Protect aquatic ecosystems and associated riparian and upland features.

Restore degraded aquatic ecosystems and recover threatened, endangered or sensitive aquatic species.

Enhance aquatic resource user opportunities by increasing system productivity, improving user access and/or associated amenities, and providing environmental education and interpretation.*

Timber Management Goals

Provide a timber management program that perpetuates a healthy, well stocked forest on lands suitable for timber production.

Provide in concert with privately owned resources, a timber management program that supports current and future local industry and economic interests.

Provide a timber management program that meets projected demand for National

Forest timber in the most cost efficient manner while complementing other resource objectives dependent on forested landscapes.

Incorporate concepts for managing natural vegetative communities and their seral stages into established silvicultural regimes.

Operate the timber management program to provide a positive benefit-cost ratio each year.

Identify and implement cost efficient opportunities for intensified management of shortleaf pine and high value hardwood species on sites where they occur naturally.

Apply and evaluate the uneven-aged management system on selected areas to determine the long term feasibility of using this system for management on the Forest.

Range Management Goals

Provide a range management program that responds to projected demand for range forage while complementing other resource objectives, particularly those associated with open land wildlife habitat.

Emphasize the establishment and management of native warm-season grasses.

Transportation System Goals

Schedule the development of the proposed transportation system which provides the minimum permanent road access and development standards while meeting resource management objectives.

Provide for temporary access to complement the permanent road system for effective resource development.

Recognize and provide for off-road vehicle use in a manner that protects the resource and complements other management programs.

Close unnecessary roads.

Minerals Management Goals

Provide for mineral prospecting and mineral development while complementing other resource management objectives.

Fire Management Goals

Identify a cost efficient response to fire prevention and suppression based on management area objectives and values at risk.

Implement prescribed fire as a tool for meeting resource management objectives.

Soil, Water and Air Management Goals

Identify a program that ensures the maintenance of soil productivity and the achievement of water and air quality objectives.

Land Adjustment Program Goals

Provide a land adjustment program that emphasizes consolidation of National Forest System lands.

Seek a landownership pattern that minimizes costs of owning and managing National Forest System lands while emphasizing public benefits provided by the Forest.

Acquire key tracts needed for management of National Forest programs.

Emphasize the exchanges of isolated tracts of National Forest System lands.

Emphasize the resolution of occupancy trespass.

Provide public access to National Forest System lands.

Prioritize and schedule property boundary surveys to accomplish survey objectives in the most efficient manner.

FOREST MANAGEMENT OBJECTIVES

The following management objectives quantify the management goals discussed above. Outputs and resource summaries are presented on a Forest-wide basis. The first decade figures reflect output under the Plan direction. Outputs for decades 2 through 5 are projections that could be produced if first decade direction were continued over that period. The outputs show production only to demand levels. Although the preferred alternative has the capacity to meet or exceed all demand, investment will not be made in production above demand (See FEIS, Appendix B). Road network objectives reflect the mileage determined to be needed through transportation analysis. These objectives reflect actual mileage associated with ground truthing Alternative 5 (Forest Plan).

Projected Outputs

Table 4-1

AVERAGE ANNUAL FOREST-WIDE OUTPUTS 1/
 DECADE 1 = PLANNED; DECADES 2 - 5 = PROJECTED

Management Practice	Unit of Measure	MIH Code	First Decade	Second Decade	Third Decade	Fourth Decade	Fifth Decade
Recreation 2/							
Semi-Primitive Nonmotor	MRVD	W03	26.8	29.3	32.6	36.2	39.8
Semi-Primitive Motor	MRVD	W05	92.4	101.1	112.3	124.6	137.3
Roaded Natural	MRVD	W07	970.1	1061.3	1179.5	1309.0	1442.6
Rural	MRVD	W09	380.6	416.3	462.7	513.5	566.0
Wilderness	MRVD	W33	15.3	27.2	33.0	35.9	38.8
Fish & Wildlife Use	MWFUD	W64	527.7	584.0	640.8	694.6	743.1
Fish & Wildlife	M Acres	C02	9.0	9.9	10.9	11.8	12.6
Improvement (PM&KV)							
Range Use	MAUM	W67	37.4	42.0	43.3	44.3	45.3
Range Improvement	M Acres	DO3	4.9	5.5	5.6	5.8	5.9
Road Development 3/	Miles	L12/ L14	32.0	15.0	-	-	-
Road Reconstruction of 4/ Existing System Network	Miles	L13/ L29	18.0	22.0	25.0	25.0	25.0
Land Acquisition	M Acres	J15	0.3	0.3	0.3	0.3	0.3
Land Exchange	M Acres	J13	3.2	3.2	1.4	-	-
Land Line Survey	Miles	J06	86.0	86.0	86.0	82.0	46.0
Timber- 5/							
Sawtimber/Products	MMCF (MMBF)	E06	13.3 (79.8)	18.8 (112.8)	23.8 (142.8)	28.7 (172.2)	33.1 (198.6)
Fuelwood	MMCF (MMBF)	E06	4.2 (25.2)	6.0 (35.7)	7.5 (45.1)	9.0 (54.3)	10.4 (62.6)
Harvest Treatments 6/							
Regeneration Cuts 7/	M Acres	E01	11.2	11.2	11.4	14.3	15.9
Intermediate Cuts 8/	M Acres	E02	17.7	28.3	32.6	34.4	40.3
Salvage and Sanitation Cuts 9	M Acres	E02	1.5	1.5	1.5	1.5	1.5
Reforestation 7/	M Acres	E04	11.2	11.2	11.4	14.3	15.9
TSI 10/	M Acres	E05	3.6	15.5	9.7	10.5	13.6

1/ Outputs adjusted to not exceed demand except that land adjustment objectives will be accomplished as rapidly as funds and opportunities permit.

2/ Recreation outputs do not include user days associated with Fish and Wildlife or Wilderness use.

3/ Road Development includes the mileage needed to complete the transportation network. It includes the upgrading of 424 miles of presently unimproved roads and 46 miles of new road construction on previously undisturbed land.

4/ Road Reconstruction involves the scheduled reconstruction of existing permanent roads as their design life is met.

5/ Outputs reflect timber sale program quantity and include 1.5 MMCF per year of non-chargeable volume primarily in the form of free fuelwood.

6/ See Table 4-4 for detail by method of cut.

7/ The maximum level of regeneration and subsequent reforestation will be determined in the development of the 10 year implementation schedule. It will be the result of the opportunity available to achieve wildlife standards and guidelines for the 0-9 year habitat objectives by individual management area.

8/ Intermediate cut levels will be reduced to the level needed to meet that portion of demand not satisfied by regeneration cuts assigned in response to wildlife habitat objectives.

9/ Includes both regeneration and intermediate cuts as needed to respond to stand condition.

10/ Actual treatment acres to be determined in development of 10-year implementation schedule based on application of management prescription standards and guidelines.

Timber Resource Summaries

Appendix B of the Forest Plan provides the sale schedule for 1986-1989. The following timber tables provide perspective to the timber resources.

Table 4-2

TIMBER RESOURCE LAND SUITABILITY

Classification	M. Acres
1. Water	3.5
2. Non-Forest Land	23.2
3. Forest Land	1,434.9
4. Forest Land Withdrawn from Timber Production	64.2
5. Forest Land Not Producing Crops of Industrial Wood	
6. Forest Land Physically Not Suited: Irreversible Damage Likely to Occur Not Restockable Within 5 years	
7. Forest Land - Inadequate Information 1/	34.7
8. Tentatively Suitable Forest Land (Item 3 minus items 4, 5, 6, and 7)	1,336.0
9. Forest Land Not Appropriate for Timber Production 2/	53.5
10. Not suited Forest Land (Items 4, 5, 6, 7, and 9)	152.4
11. Total Suitable Forest Land (Item 3 minus item 10)	1,282.5
12. Suitable Forest Land for Uneven-aged Silviculture (as defined by standards and guidelines)	166.0
13. Suitable Forest Land for Even-aged Silviculture (Item 11 minus Item 12)	1,116.5
14. Total Net National Forest Area (Items 1, 2, and 3)	1,461.6

1/ Lands for which current information is inadequate to project responses to timber management.

2/ Lands identified as not appropriate for timber production due to: (1) assignment to other resource uses to meet Forest plan objectives; (2) to meet management requirements; and (3) not cost efficient in meeting Forest plan objectives over the planning horizon.

The lands identified as unsuitable for timber production are defined as follows:

Classification 4 - Forest Lands Withdrawn From Timber Production.

These lands include Wilderness plus 1,040 acres of land deleted from the proposed Irish Wilderness. These lands are to be managed as if Wilderness except for mineral exploration activities.

Classification 7 - Forest Lands - Inadequate Information.

These are forested lands that will not produce 20 cubic feet per acre per year in timber growth. They are managed for a variety of multiple use activities other than timber production.

Classification 9 - Forest Lands Not Appropriate For Timber Production

This class is composed of lands associated with the Sinkin Experimental Forest, designated special areas other than Wilderness, candidate areas for special area classification and commercial forest lands identified for minimum level management (25.9 M-Acres). Reference Management Prescriptions 6.3, 8.1, and 9.1 for insight into the management direction for these areas. Specific timber activities that may be carried out on these lands are defined by these standards and guidelines, particularly those for 1900 and 2400.

Table 4-3

TIMBER PRODUCTIVITY CLASSIFICATION

Potential Growth (cubic feet/acre/year)	Suitable Lands (acres)	Unsuitable Lands 1/ (acres)
Less than 20		34,680
20-49	622,017	72,604
50-84	648,950	41,841
85-119	11,543	744
120-164		
165-224		
225+		
Total	1,282,510	149,869

1/ Estimated productivity of lands, such as Wilderness, where data are not available.

Table 4-4

ALLOWABLE SALE QUANTITY AND TIMBER SALE PROGRAM QUANTITY AND
VEGETATION MANAGEMENT PRACTICES (ANNUAL AVERAGE FOR FIRST DECADE)

<u>Practice</u> 2/	<u>M.Acres</u>	<u>Allowable Sale Quantity</u> 1/		
		<u>Sawtimber</u> MMCF	<u>Other</u> <u>Products</u> MMCF	<u>Total</u> <u>All</u> <u>(MMCF)</u>
<u>Regeneration Harvest</u>				
<u>Even-aged System</u>				
Clearcut	8.4 3/	4.3	2.4	6.7
Shelterwood (seed cut)	1.4	.4	.2	.6
Seed Tree (seed cut)	.2	.1	.1	.2
<u>Uneven-aged System</u>				
Group Selection Cut	1.2	.5	.2	.7
<u>Intermediate Harvest</u>				
<u>Even-aged System</u>				
Thinning	10.6	2.8	1.5	4.3
Removal Cut	1.6	.4	.2	.6
<u>Uneven-aged System</u>				
Improvement Cut	5.5	1.4	.7	2.1
<u>Salvage and Sanitation</u>				
All Cuts	1.5	.6	.2	.8
<hr/>				
Total Chargeable Volume 5/ (Allowable Sale Quantity)	30.4	10.5	5.5	16.0
<hr/>				
Non-Chargeable Volume 5/ (Additional Sales)	4/	0.0	1.5	1.5
<hr/>				
Grand Total All Volume 5/ (Timber Sale Program Quantity)	30.5	10.5	7.0	17.5

1/ Includes only chargeable volumes from suitable lands.

2/ See Appendix D, Harvest Methods, for discussion of practices.

3/ Minimum Regeneration and Reforestation objectives. See Forest-wide Standards and Guidelines 2400 Timber Management - Harvesting.

4/ Includes only nonchargeable volumes from suitable and/or unsuitable lands.

5/ Allowable sale quantity based on International 1/4" rule all products converted. 10.5 MMCF sawtimber = 63 MMBF; 7.0 MMCF small cordwood and fuelwood = 42 MMBF. Total = 105 MMBF.

Table 4-5

PRESENT AND FUTURE FOREST CONDITIONS

	<u>Unit of Measure</u>	<u>Suitable Land</u>	<u>Unsuitable Land</u>	<u>1/</u>
<u>Present forest:</u>	MMCF	1,108.2	38.8	
Growing stock	MMBF	2,905.7	168.9	
Live cull 2/	MMCF			
	MMBF			
Salvageable dead 2/	MMCF			
	MMBF			
Annual net growth	MMCF	29.2	1.0	
	MMBF	121.0	4.4	
Annual mortality	MMCF	7.0	0.3	
	MMBF	12.6	1.4	
<u>Future forest:</u>				
Growing stock	MMCF	1,007.9		
Annual net growth	MMCF	60.3		
Rotation age 3/	Years	60 to 140		
Age class distribution acres (suitable lands)	<u>Age Class</u>	<u>Present Forest</u>	<u>Future Forest</u>	<u>4/</u>
	0- 19	119.2	261.7	
	20- 39	135.9	306.4	
	40- 79	880.1	529.9	
	80-139	147.3	184.5	

1/ Prorated from current Timber Management Plans based on acreage in land use classifications 300, 400, 800, and 900.

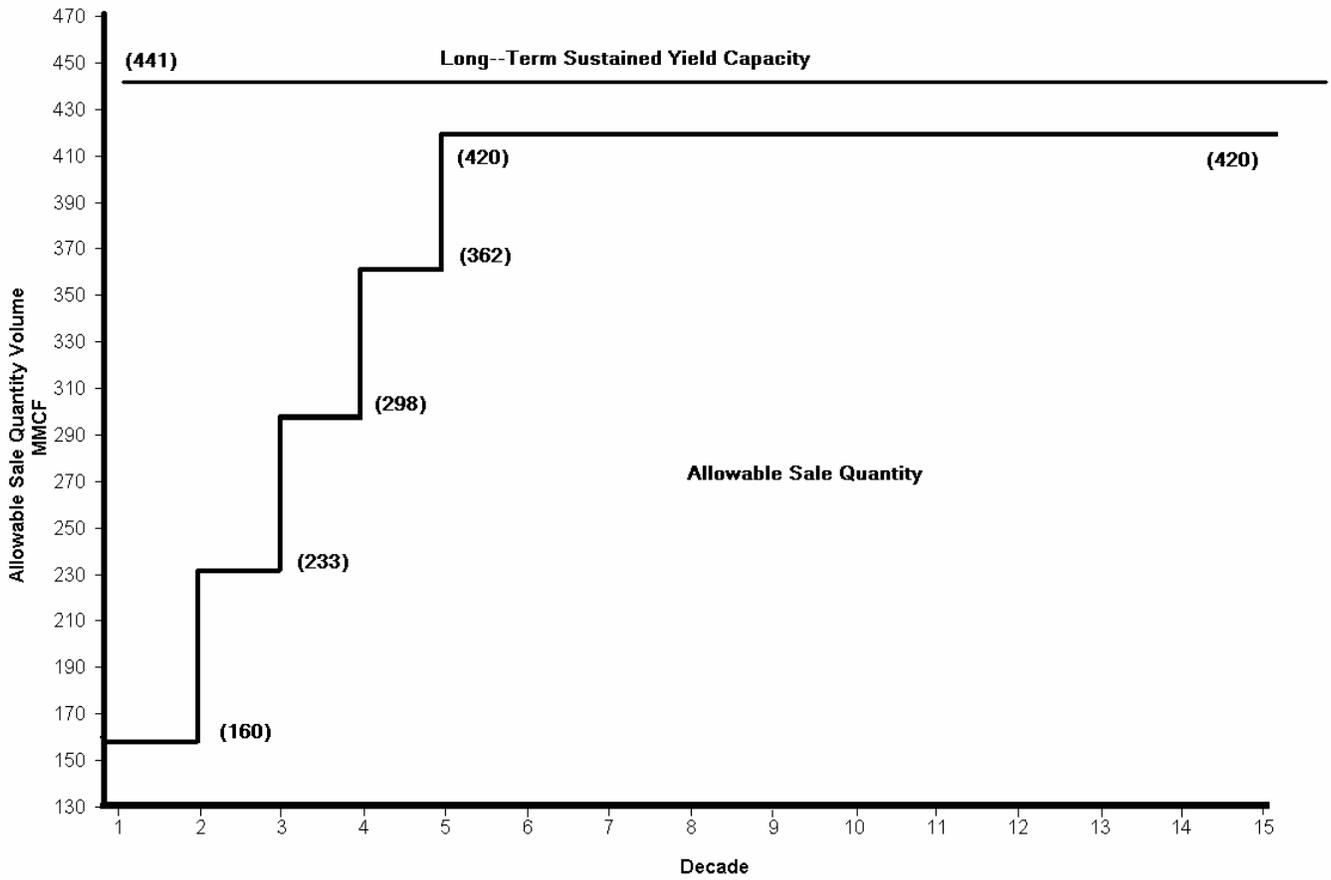
2/ Information is not available.

3/ Average rotation age range for regenerated stands on lands with timber emphasis by major forest types.

4/ At end of 150 year planning horizon.

Figure 4-1

Display of Long-Term Sustained Yield and Allowable Sale Quantity



Other Resource Summaries

Appendix B of the Forest Plan provides annual planned program outputs for the first decade and projected outputs for the second decade for programs other than timber.

FOREST-WIDE STANDARDS AND GUIDELINES

These standards and guidelines apply to management practices over the entire Mark Twain National Forest. They apply to all management prescriptions and will qualify practices in all management areas unless specifically excepted.

1100 Directives System

The terms "standards" and "guidelines" as used in the Forest Plan have equal significance and both represent Forest policy.

The standards and guidelines supercede all earlier Forest supplements to the Forest Service Manual and Handbook System for comparable direction.

Additional standards and guidelines may be incorporated into the Forest Plan throughout the Plan period.

Standards and guidelines will not be rewritten nor reestablished as Forest supplements to either the FSM or FSH.

Standards and guidelines may be elaborated upon or clarified through Forest supplementation of the FSM and FSH System.

Necessary elaboration on standards and guidelines will be confined to the FSH system to the maximum extent possible.

Proposed Forest supplements to either the FSM or FSH system that require public review under provisions of 36 CFR 216, will be reviewed by the Forest Interdisciplinary Team prior to approval.

The Interdisciplinary Team will recommend one of the following actions to the Forest Supervisor on each proposed FSM or FSH supplement reviewed.

Issue as a Forest Plan standard and guideline.

Issue as a FSM supplement.

Issue as a FSH supplement.

Disapprove because:

It conflicts with Forest Plan direction.

It is adequately covered by Forest Plan direction.

Forest supplements to the Forest Service Manual must comply with provisions of 36 CFR 216 - Public Notice & Comment on Forest Service Directives. Forest Service Handbook supplements are excluded from this required determination of public interest. The Forest Supervisor may elect to include FSH supplements in this process.

Proposed manual directives which provide guidelines and procedures on administrative support activities such as personnel matters, procurement services, contracting, and other routine business operations of the agency are not included under these public review requirements.

Each proposed FSM supplement will be evaluated against the following factors to determine if public notice is merited:

Degree of change in the direction.

Impact on the public.

Degree of known public interest or controversy over the subject or related subjects.

The responsible line officer will determine and document compliance with 36 CFR 216.

Public notice of the issuance of a Forest supplement can be given through press releases, newspaper notices, letters to known interested parties, etc.

The public will have a minimum of 30 calendar days to review and comment on the proposal.

If an emergency exists, an interim directive may be issued immediately even if it contains direction that should have public comment. In this event, the issuing officer prepares a public notice announcing the Interim Direction, setting forth the reasons for issuing the ID without public notice and comment, and asking for public comment, which will be considered before the final policy is issued.

1600 Information Services

Seek involvement of directly effected publics concerning management plans and programs prior to their implementation. Breadth of public involvement should be related to the significance of the decision being made.

Implement a public information and education program in coordination with other public and private organizations to reduce the number, intensity, and cost of conflict-producing and resource-damaging situations.

Provide a "Ready-Response" form with each formally written request for public input.

The content of the response form will be developed on a case by case basis.

1800 Human and Community Development

Identify forest and range opportunities that will help individuals and local communities enhance their self-sufficiency and their feeling of social well-being.

Resource management activities shall not preclude the right of American Indians to exercise their traditional religion. Concerns expressed by American Indians relative to their cultural heritage will be evaluated and resolved as provided by law and regulations.

Unwarranted competition with the private sector will be avoided where comparable goods and services are provided.

Contracted services will be used whenever appropriate to implement Forest Plan direction.

Each administrative unit will maintain a list of work opportunities suitable for volunteer individuals and organizations.

Social values will take priority over cost efficiency objectives in responding to specific Human and Community Development Programs.

1900 Land and Resource Management Planning

Vegetative Management

Vegetation management objectives will be met in the following priority.

1. Apply vegetation management practices necessary to meet minimum management requirements.
2. Apply vegetation management practices necessary to achieve the species composition objective of the management prescription, i.e., natural community, high value hardwood, or shortleaf pine.
3. Apply FORPLAN prescriptions as assigned by analysis areas to any remaining management area acreage as practicable.

The management of woody plants will be limited to their botanical range on sites where they may be naturally encountered, except as necessary for restoration or administrative site landscaping.

Noxious weed control will meet State laws.

Generally, individual stand delineations will not cross ecological landtype boundaries; however, more than one stand may occur within an ecological landtype. The I.D. Team may identify exceptions.

When the objective is to manage natural vegetation communities they will be characterized as follows. A complete description may be found in the Forest's Ecological Classification System Report.

1/

1. Mesic bottomland forest (Ecological landtype: 3)
Dominant plants: sugar maple, bitternut hickory, hackberry, and white oak.
2. Mesic bottomland forest (Ecological landtype: 39)
Dominant plants: sweetgum, American elm, sugar maple, shellbark hickory, giant cane, and Drummond's red maple.
3. Mesic bottomland forest (Ecological landtype: 59)
Dominant plants: bur oak, pin oak, American elm, and shellbark hickory.
4. Wet-mesic bottomland forest (Ecological landtype: 1)
Dominant plants: silver maple and sycamore
5. Wet-mesic bottomland forest (Ecological landtypes: None assigned)
Dominant plants: bur oak, swamp chestnut oak, silver maple, American elm, poison ivy, and wood nettle.
6. Wet-mesic bottomland forest (Ecological landtype: 61) Dominant plants:
bur oak, swamp chestnut oak, silver maple, American elm,
poison ivy, and wood nettle.
7. Wet-mesic bottomland forest (Ecological landtype: 62)
Dominant plants: silver maple and sycamore
8. Dry-mesic bottomland forest (Ecological landtype: 6)
Dominant plants: white oak, shagbark hickory, shumard oak, blackgum,
and black cherry.
9. Dry bottomland forest (Ecological landtype: 5 and 56)
Dominant plants: elm, chinkapin oak, hickory, white oak, hackberry,
and blackgum.
10. Gravel wash (Ecological landtypes: 1 and 4)
Dominant plants: None listed
11. Mesic forest (Ecological landtype: 7)
Dominant plants: northern red oak, sugar maple, and white oak.
12. Mesic forest (Ecological landtypes: 35 and 58) Dominant plants:
northern red oak, sugar maple, white oak, and basswood.

1/ Number relates to the natural community in the State ecological system.

13. Dry-mesic forest (Ecological landtypes: 51, 55, 63 and 64)
Dominant plants: white oak, northern red oak, shagbark hickory, and sugar maple.
14. Dry Forest (Ecological landtype: 54)
Dominant plants: white oak, black oak, chinkapin oak, rough-leaved dogwood, prickly ash, and pennyroyal.
15. Dry-mesic chert forest (Ecological landtype: 18)
Dominant plants: white oak, northern red oak, black oak, blackgum, flowering dogwood, and Virginia creeper.
16. Dry chert forest (Ecological landtypes: 9, 13, and 16)
Dominant plants: black oak, white oak, post oak, flowering dogwood, and lowbush blueberry.
17. Dry chert forest (Ecological landtypes: 9, 13, 16, and 29)
Dominant plants: black oak, scarlet oak, flowering dogwood, and lowbush blueberry.
18. Dry chert forest (Ecological landtype: 37)
Dominant plants: white oak, black oak, shortleaf pine, lowbush blueberry, and highbush blueberry.
19. Dry chert forest (Ecological landtypes 11, 15, and 17)
Dominant plants: white oak, black oak, scarlet oak, shortleaf pine, flowering dogwood, and lowbush blueberry.
20. Dry chert forest (Ecological landtypes: 11, 15, and 17)
Dominant plants: white oak, black oak, post oak, shortleaf pine, flowering dogwood, and lowbush blueberry.
21. Dry chert forest (Ecological landtype: 15)
Dominant plants: white oak, black oak, shortleaf pine, flowering dogwood, and lowbush blueberry.
22. Xeric chert forest (Ecological landtypes: 8 and 12)
Dominant plants: post oak, black oak, highbush blueberry, and goat's rue.
23. Xeric chert forest (Ecological landtypes: 10 and 14)
Dominant plants: post oak, black oak, shortleaf pine, highbush blueberry, and goat's rue.
24. Mesic savanna (Ecological landtype: 60)
Dominant plants: bur oak, white oak, big bluestem, and Indian grass.
25. Hardpan prairie (Ecological landtype: 60)
Dominant plants: big bluestem, Indian grass, and switch grass.
26. Glade savanna (Ecological landtype: 19)
Dominant plants: post oak, white oak, black oak, little bluestem, and eastern redcedar.

27. Dry savanna (Ecological landtypes: 8 and 12)
Dominant plants: post oak, blackjack oak, and little bluestem.
28. Dry-mesic limestone forest (Ecological landtypes: 20 and 52)
Dominant plants: white oak, sugar maple, northern red oak, and flowering dogwood.
29. Dry limestone forest (Ecological landtypes: None assigned).
Dominant plants: white oak, eastern redcedar, dwarf chinkapin oak, sugar maple, flowering dogwood, and fragrant sumac.
30. Dry limestone forest (Ecological landtype: 23)
Dominant plants: white oak, eastern redcedar, dwarf chinkapin oak, sugar maple, flowering dogwood, and fragrant sumac.
31. Dry limestone forest (Ecological landtype: 53)
Dominant plants: white oak, black oak, post oak, rough-leaved dogwood, prickly ash, and pennyroyal.
32. Xeric limestone forest (Ecological landtype: 22)
Dominant plants: eastern redcedar, dwarf chinkapin oak, fragrant sumac, and greenbrier.
33. Xeric limestone forest (Ecological landtype: 57)
Dominant plants: eastern redcedar, dwarf chinkapin oak, fragrant sumac, and greenbrier.
34. Dolomite glade (Ecological landtype: 21)
Dominant plants: little bluestem and sideoats grama.
35. Limestone glade (Ecological landtype: 21)
Dominant plants: little bluestem, sideoats grama, bald grass, and Indian grass.
36. Igneous glade (Ecological landtype: 26) Dominant plants: Indian grass, *Crotonopsis elliptica*, ragweed, highbush huckleberry, post oak, winged elm, and lichen (*Cladina* spp.).
37. Dry-mesic igneous forest (Ecological landtype: 25)
Dominant plants: white oak, northern red oak, and scarlet oak.
38. Dry igneous forest (Ecological landtypes: 24, 28, 30, 34, and 38)
Dominant plants: white oak, scarlet oak, black oak, highbush huckleberry, and fragrant sumac.
39. Xeric igneous forest (Ecological landtype: 27)
Dominant plants: post oak, winged elm, winged sumac, and little bluestem.
40. Dry-mesic sand forest (Ecological landtype: 18)
Dominant plants: white oak, northern red oak, southern red oak, and black oak.

41. Dry sand forest (Ecological landtypes: None assigned)
Dominant plants: white oak, scarlet oak, black oak, shortleaf pine, lowbush blueberry, and highbush blueberry.
42. Dry sand forest (Ecological landtype: 33) Dominant plants: white oak, black oak, lowbush blueberry, and highbush blueberry.
43. Xeric sand forest (Ecological landtype: 31)
Dominant plants: post oak, blackjack oak, shortleaf pine, highbush blueberry, and little bluestem.
44. Xeric sand forest (Ecological landtype: 32)
Dominant plants: post oak, blackjack oak, highbush blueberry, and little bluestem.
45. Calcareous wet forest (Ecological landtype: 2)
Dominant plants: red maple, American elm, green ash, and moss.
46. Acid seep forest (Ecological landtype: 36)
Dominant plants: water tupelo and pin oak.

There will be no additional restrictions, beyond those associated with a management area, simply because it adjoins a Wilderness, developed recreation site, Research Natural Area, Natural History Area, and administrative site, or other formally recognized special areas.

Special Areas

General

Cultural, biological, geological or aquatic conditions of special management significance will be documented in stand data records and mitigation to protect or enhance their condition identified in stand prescriptions.

Protect special areas as needed and enhance some on a case-by-case basis relative to their natural significance and public interest.

Mitigation costs for the protection of special areas will be included in the economic analysis for the proposed project. Modification of the feature shall only occur if supported by an environmental assessment.

*When special areas coincide with specialized wildlife habitats, standards and guidelines for those habitats will be applied. *

Areas having potential for special Forest significance or formal Federal or State classification will be identified and managed under the provisions of Management Prescription 6.3 - Candidates for special designation. (Also see Forest Plan Appendix I). Areas currently having special classification may be candidates for higher order recognition. These areas will be managed under the provisions for Management Prescription 8.1 - Designated Special Areas. (Also see Forest Plan Appendix I.)

*Areas on National Forest System lands found by the special area inventory being conducted in cooperation with the Missouri Department of Conservation and appearing in their Natural Features Inventory Reports will be allocated to Management Prescription areas as follows.

1. All significant features will be designated as 8.1 Forest Special Areas. Specific Forest Special Area Standards and Guides will be developed that emphasize protection of these areas from any disrupting activities. "Significant" areas that could qualify for classification higher than Forest Special should be so noted and their classification analysis scheduled.
2. All exceptional features will be designated at least as 6.3 areas. Each of these areas will be managed under the 6.3 S&Gs until designated into another management prescription through the IRM process. "Exceptional" areas may be designated 8.1 Forest Special if adequate information is readily available to support the recommendation.
3. Notable features may be designated as 6.3 areas and so managed. If adequate information is readily available to disqualify a "Notable" area for 6.3 candidacy, do so and document accordingly.

The influence area of each feature should be that identified in the Inventory Report unless IRM analysis procedures support a revised boundary. *

Perennial Springs and Spring Branches

These areas will have a minimum of a 100 foot buffer zone within which any treatment will be modified on a case-by-case basis to:

Meet State water quality standards and regulations.

Comply with the riparian zone standards and guidelines identified under Forest-wide 2500 and 2600.

Protect visual aspects.

Protect and enhance natural plant and animal communities.

Geological Features

Project areas which include significant geological features such as caves, rock formations, and sinkholes will have a prescribed treatment that protects the physical aspects of the feature.

No camping will be permitted within 100 feet of significant caves, rock shelters, springs and designated rock formations as signed.

Caves will be classed in one of three categories: Unrestricted Caves, Restricted Caves and Closed Caves. The specific standards for managing each cave are described in the cave inventory report. The three categories are described as follows:

Unrestricted Caves

Not guaranteed safe, but least dangerous to people unskilled in caving techniques.

Little or no known or potential cultural resources and natural history value, or ones which will not be adversely impacted by uncontrolled public usage.

No known Federally listed threatened and endangered species, State listed rare and sensitive species, or other biologically significant species or ecosystems, or if present will not be adversely impacted by uncontrolled public usage.

Restricted Caves

Some, but not all, of these caves would require technical skills beyond that of the average Forest visitor and could present substantial hazards to the user.

Cultural resource presences will not be a disqualifying factor. These caves may have natural history resources that merit some degree of protection.

May include caves containing Federally listed threatened and endangered species, State rare and sensitive species, and other biologically significant species and/or ecosystems requiring seasonal protection.

Closed Caves

Public safety alone will not mandate a closed status.

Administratively or legislatively designated cultural resource or natural history values, or those containing validated evidence of cultural values.

Designated critical habitat or those caves containing evidence that indicates importance to the perpetuation of species identified as Federally listed threatened and endangered requiring year-round protection.

All caves will be identified as Management Area 6.3 until their significance for formal designation is resolved.

A cave categorized as "Restricted" or "Closed" will be identified as Management Area 8.1 and have a specific management action plan developed.

A cave categorized as "Unrestricted" will be managed in conjunction with the management area in which it occurs, unless it has been identified for special area classification (8.1) for reasons other than public access. The cave inventory report and Forest-wide standards and guidelines will apply.

NEPA Process

A decision to implement any site-specific action that could affect resources, land uses, and environmental quality shall be preceded by an environmental analysis. The responsible official will use the results of the analysis to determine if any documentation is required.

Categorical exclusions will be used whenever practical.

A Decision Notice based on the Forest Categorical Exclusion Checklist will be used to record the use of categorical exclusions.

Annual programs, projects, and activities covered by the Forest Plan Environmental Impact Statement will normally be documented only by a Decision Notice. This Decision Notice will list the annual project work plans and state their compliance with Forest Plan direction. Highly controversial actions may be further evaluated at the discretion of the responsible official.

A program, project or activity not covered by the Forest Plan Environmental Impact Statement or not in compliance with it will be evaluated by a separate environmental analysis.

Vegetative manipulation projects included in environmental analyses must be in accordance with approved coordinated compartment prescriptions conforming to Forest Plan direction.

Decision Notices for vegetative manipulation projects from the Forest Plan project list to be implemented in the next fiscal year will be developed by August 1 of the current fiscal year.

Projects listed in the annual vegetation manipulation program that involve herbicides shall identify the specific herbicides and acreages affected. The decision to use herbicide versus other alternatives shall be clearly evaluated during project analysis and documented in the Decision Notice.

Normally, the Ranger is the responsible official. If prescriptions exceed Forest policy or reflect practices where authority has not been delegated, the Forest Supervisor is normally the responsible official.

Plan Implementation

The Forest Plan is the basis for all resource and budget planning activities.

Within five years after Plan approval, the Forest Supervisor will ensure that, subject to valid existing rights, all outstanding permits, contracts, cooperative agreements, and other occupancy and use of affected lands are consistent with the Plan (36 CFR 219.10(e)).

Within two years after Plan approval, Forest-level Manual and Handbook direction will conform to the Forest Plan. An interdisciplinary approach will be used in developing the Manual and Handbook changes.

A multi-year program implementation schedule covering all major practices is included in the Forest Plan. The implementation schedule will be refined to multi-year site-specific projects within two years of Plan approval. The Integrated Resource Management process (IRM) applied to management areas will be used to identify site specific projects.

The implementation schedule will consist of a ten-year project list to meet output projections and a three to five-year site-specific action plan. Regeneration cut objectives for a twenty year period will be mapped to ensure effective spatial distribution to meet standards and guidelines.

The Forest Supervisor is responsible for annually revising, updating, and approving the program implementation schedule including public involvement procedures .

Site-specific projects in the implementation schedule will include:

Timber sales, harvest acres, volume, and location.

System Road construction and major reconstruction.

Dam construction and reconstruction.

Recreation construction and major reconstruction.

Buildings and facilities, construction/reconstruction.

Wildlife and fish habitat improvements.

Soil and watershed improvements.

Range facilities and improvements.

TSI and reforestation projects.

Trail construction.

Program-level objectives will be listed for:

Cultural resources.

Land adjustment.

Property boundary survey.

Minerals management.

Administrative activities affecting National Forest System lands, including budget proposals, shall be based on the Plan. The Forest Supervisor shall adjust proposed implementation schedules to reflect differences between proposed annual budgets and appropriated funds. Such scheduled changes shall not be considered a significant amendment, unless the changes significantly alter the long-term interrelationship of multiple-use goods and services projected as compared to those actually accomplished. (36 CFR 219.10(e)).

Upon allocation of the final budget to the Forest, the annual program of work will be finalized and implemented consistent with Forest Plan direction.

Plan Monitoring, Review and Revision

The Forest Plan period is normally ten years and shall not exceed fifteen years.

The Forest Plan will be monitored annually, based on Chapter V direction.

A monitoring program will be included as part of the Forest's annual program of work. This program will include the schedule of monitoring actions, specific locations, costs, and responsibilities.

An evaluation of monitoring results will be made annually by the Forest Supervisor. Based on this evaluation, the Forest Interdisciplinary Team will make recommendations to the Forest Supervisor on proposed amendments, revisions, or changes in management direction to the Forest Plan.

An annual summary of Forest Plan amendments will be incorporated into the Plan as additions and made available to interested parties. This will ensure that the Plan will remain current. September 30 is the annual target date for completion of these Forest Plan amendment summaries.

This Forest Plan will receive a 5-year review to be completed by September 30, 1991.

The Forest Plan may be revised when necessary, but not later than September 30, 2000.

RPA Coordination

Annual program development will be based upon the Forest Plan.

Forest Plan program data will be updated annually, as needed, and evaluated every five years for RPA updates.

Forest annual budget adjustments will be based upon project information.

2100 Environmental Management

Air Quality

The Forest will cooperate with the air quality monitoring program as defined by the Missouri Department of Natural Resources.

Hercules Glades Wilderness is the only Class I air quality area currently within Forest jurisdiction.

The Forest, except the Hercules Glades Wilderness, will be protected as a Class II air quality area.

No proposals for redesignation to Class I air quality areas will be made this Plan period.

The Forest Service will not engage in, support, license, or approve any activity that does not conform to the State Air Quality Implementation Plan and associated regulations.

Activities associated with prescribed burning, forestry operations, and strip mines are currently excluded from State Air Quality Regulations.

Modify projects as needed to protect and maintain air quality and National Forest resources.

Hazardous Waste

Any suspected uncontrolled or abandoned hazardous waste sites shall be reported promptly to the Missouri Department of Natural Resources. If the presence of hazardous wastes is confirmed, the Forest Service shall, in conjunction with the Department of Natural Resources, assess the severity of the situation and, if warranted, take remedial action to protect the public health, welfare and environment.

Suspected hazardous waste contamination of National Forest System lands whose source is thought to be on adjacent non-Federal land shall be reported to the Missouri Department of Natural Resources for investigation and resolution.

Contracts, leases and permits for occupancy of National Forest System lands shall contain clauses which prohibit or regulate the production, use, and/or storage of hazardous waste materials on said lands.

Pesticide Use

Use pesticides only after alternative analysis clearly demonstrates that pesticide use is the most effective means to meet overall management objectives. The analysis will consider the environmental acceptability, economic efficiency, and biological effectiveness of alternatives. Alternatives include silvi-cultural, mechanical, manual, prescribed fire, biological, chemical, and regulatory practices.

Use only pesticides registered with the Environmental Protection Agency (EPA) in full accordance with the Federal Insecticide, Fungicide, Rodenticide Act as amended, except as otherwise provided in regulations, orders, or permits issued by the EPA.

The use of pesticides will comply with appropriate State laws and the product label.

Persons applying or supervising the application of wood preservatives containing creosote, pentachlorophenol, or inorganic arsenicals must be certified as restricted-use pesticide applicators in the Forest category. Certification either through the State or Forest Service is acceptable. Regional policy concerning restricted-use pesticides in FSM 2154.2 applies to these wood preservatives.

A job hazard analysis for activities involving wood preservatives or other pesticides shall be prepared or reviewed by persons who are certified, except for housekeeping use, minor use less than 1 pound active ingredient per project and field experiments.

Review for approval all permittee, licensee, and grantee pesticide use proposals and plans to ensure that all uses of pesticides on National Forest System lands conform to standards and guidelines.

Records of pesticide use will be maintained.

Areas treated with pesticides will be signed, as appropriate, to ensure users are informed of possible exposure.

Aerial application of pesticide will not be permitted unless approved by the Forest Supervisor based on an environmental analysis that has shown it is the only environmentally sound and biologically effective method practicable.

Use the minimum pesticide dosage that will control the pest or undesirable vegetation.

Project proposals involving pesticides that adjoin other ownerships or areas of high public use will be evaluated to determine coordination needs.

On Riverwash, Gasconade, Alluvial lands-mixed, Rockland, Midco, Elsay, Syenite, Opequon and Ramsey soils, and the Granite Glades, application of pesticides not registered for watercourse bank or instream use shall be by individual stem application.

The quantity of pesticides held in storage should be limited to the amount planned for use within 6 months. Storage of quantities larger than this requires approval by the Forest Supervisor.

Catastrophic Hazard Response

Apply precautions to minimize loss of life, property and resources from flood, wind, wildfire, erosion and other natural forces.

Cooperate with the U.S. Weather Bureau by providing rainfall data, as requested, to aid in flood prediction.

Mitigate and rehabilitate the effects of natural or man-caused catastrophes as necessary to protect and restore both on-site and off-site resources.

Use the most expedient methods and the minimum investment necessary to mitigate the adverse effects of catastrophe threatening public health and safety and off site property.

Salvage merchantable timber products resulting from natural or man-caused catastrophe when such salvage meets operability standards for the local areas, accomplishes the objective of the management area and/or responds to social concerns. (Not applicable to Management Prescription 5.1)

2200 Range Management

Forest-wide Range Management Standards are not applicable to Management Prescriptions 5.1 or 9.1.

The primary purpose of the Range Management program on the Forest is to provide a cost effective means of manipulating openland vegetation for the achievement of overall management area objectives. The range resource will be managed to the degree that it complements, or does not detract from, other management area objectives.

Grazing levels shall not cause significant or permanent impairment of the productivity of the land.

Only cattle and horses will be permitted to graze on allotments.

Favor use of forage species that are suitable for both grazing and quality hay production that requires minimum fertilization.

Sites meeting the following criteria may be considered for the production of forage:

Capable of producing at least 400 lbs. of forage per acre per year under normal management regimes.

Occurring on slopes less than 40% when in conformance with Soil standards and guidelines 2500.

Allotments are 10 acres or greater in size.

Provides at least a cool-season grass/legume forage.

Permits forage utilization under "split" or "less than year-long" grazing seasons.

Permits management under a regime for cool-season grasses that limits forage utilization to no more than 70% by weight or a 3"-8" stubble height.
Warm-season grass utilization would be limited to no more than 60% of current years forage production by weight or a stubble height of 6"-18".

In meeting native grassland production objectives, practices such as prescribed fire, cedar cutting, and pesticide application may be used.

Pasture management for warm-season grasses may involve practices such as prescribed fire, species reintroduction and pesticide application.

Pasture management for cool-season grasses may involve practices such as prescribed fire, seeding legumes, fertilization, mowing and liming.

In areas of concentrated recreation, allotment plans shall be compatible with recreation objectives.

Grazing systems will be designed to develop and maintain specific wildlife habitat objectives such as vegetation composition and stand structure.

Allotment plans shall complement wildlife habitat objectives for each management area.

The amount of forage utilized annually for livestock will not exceed the total available forage less the annual forage needs of wildlife.

Hay fields having significant wildlife habitat and other resource values may be managed for these habitat objectives and the available forage sold.

Term grazing permits may be issued where economic analysis and demand supports long-term range investment.

A priority in awarding permits should be given to local residents operating a farm as the sole source of their livelihood over those individuals engaged in some other business with farming as a sideline.

Issue all permits based on a cow/calf operation. The upper limit for term permits is 150 head of cows. The back and forth switching from yearlings to cows is discouraged. Where the permittee has demonstrated a need to graze yearling cattle a permit can be issued with the allotment management plan specifically identifying yearlings rather than cows grazing.

Yearling cattle may be permitted in lieu of cows where an exceptional forage producing year warrants the grazing of additional cattle under temporary permit.

The following conversion factors will be used to determine stocking rates when converting from one age class of livestock to another:

1.	Bulls	1.3 AUM
2.	Cows with nursing calves up to six months of age	1.3 AUM
3.	Cows without calves	1.0 AUM
4.	Weaned calves weighing more than 500 lbs.	0.7 AUM
5.	Weaned calves weighing less than 500 lbs.	0.5 AUM
6.	Horses	1.2 AUM

Age and weight class of the animals to be grazed must be determined at the time of taking the grazing application.

When current grazing and haying opportunities are being phased out in lieu of other objectives, limit use authorization to annual renewable special use permits.

Each allotment shall be inspected a minimum of three times each year; preseason, mid-season, and post season.

The District Ranger will determine whether the permittee is qualified to hold a grazing permit.

Where present permittees do not qualify under Forest requirements, they will (1) not be required to acquire additional land to meet the land requirement; (2) be required to own their livestock in fee; (3) be required to brand or tag their permitted livestock. New applicants will be required to meet all Forest qualification requirements.

Private land used in conjunction with the permittee's permitted use will be known as "base property".

The permittee must own in fee 50% of the base property necessary to adequately care for the permitted livestock during the period they are not on National Forest System lands.

The base property shall have necessary facilities, such as fences, corrals, water and forage to handle the permitted livestock.

Location of the base property must be within or adjacent to the Forest's administrative boundary.

The permittee's residence does not have to be located on the declared base property.

If the permittee sells all or part of their base property which would disqualify them for a grazing permit, they will be given one year from the date of final closure to meet the Forest standard. Notice of this change and one year "grace" period will be given the permittee in writing.

The permittee must own in fee the livestock to be grazed.

All livestock grazed on National Forest System lands shall be tagged or branded with the permit holder's brand as currently recorded with the Commissioner of Agriculture.

2300 Recreation Management

***General**

The recreation program will emphasize a quality dispersed recreation opportunity for those activities complemented by large areas of public ownership, and developed recreation opportunities based on actual use or specifically documented demand.

Planning

The Recreation Opportunity Spectrum (ROS) will be applied to National Forest System lands. ROS classifications will conform to management area boundaries. Normally a management area will contain only one ROS classification. Occasionally, small structures that are out of character with the ROS class may be needed to provide for safety, resource protection, or visitor management needs.

Dispersed and developed recreation uses will conform to the objectives of the ROS class assigned to each management area.

Acre/year capacities by ROS class for dispersed recreation are:

Primitive	1.6 RVDs
Semi-primitive Non-motorized	1.8 RVDs
Semi-primitive Motorized (Terrestrial)	3.7 RVDs
Semi-primitive Motorized (Water)	94.0 RVDs
Roaded Natural (Terrestrial)	4.2 RVDs
Roaded Natural (Water)	111.0 RVDs
Rural (Terrestrial)	39.6 RVDs
Rural (Water)	112.0 RVDs

Acre/year capacities by ROS class for developed recreation are:

Semi-primitive Non-motorized	0.0 RVDs
Semi-primitive Motorized	187.0 RVDs
Roaded Natural	223.0 RVDs
Rural	224.0 RVDs

Regulation of use will occur only to stay within carrying capacity, to prevent site deterioration, to maintain the ROS classification, or to provide for public health, safety, and enjoyment.

Design and Development

Investment in recreation management will be made to meet the needs and desires of the public that is being served or is targeted to be served at that facility, protect the site, follow riparian guidelines, and meet ROS classification objectives.

Provide recreation facilities needed to protect public health and safety, for site protection within ROS capacity levels, and to meet documented demands of existing and/or targeted users.

Facility design will conform to SIOs and the ROS class of the site.

Consideration for persons with disabilities will be included in new and rehabilitated site designs in accordance with Section 504 of the Rehabilitation Act of 1973.

Operations

Simple, well-proportioned, appropriate signs shall be erected in campgrounds and picnic grounds to direct and inform the public. Regulatory signing will be held to a minimum, and the use of negative statements will be avoided.

Recreation sites may be closed or services reduces when warranted due to high cost of operation and/or low use. Developed recreation areas, as permitted by design, will be managed so sections may be opened or closed as use levels dictate.

A process for achieving fee comparability with private sector sites will be used.

When designated areas are open and the required services and facilities are offered, fee signs shall remain in place and the fee system shall be in effect and enforced. Fees shall be dropped and fee signs removed when required services or facilities are not available, and if the collection of fees is not helping to meet management objectives. Donations will be encouraged where a fee system is not appropriate.

Each public developed recreation site shall be inspected annually before the beginning of the managed use season. To the extent practicable, known safety hazards will be eliminated.

The pack-in/pack-out philosophy will be applied to non-fee campgrounds, day use only developments, and dispersed activity areas whenever its success is likely.

Low-impact or no-trace camping will be emphasized in dispersed areas.

Regulation

Hunting and trapping is permitted under State regulation on all National Forest System lands, except as may be restricted on developed sites.

Use of metal detectors to search for treasure troves, and locating historical and prehistoric artifacts and features will only be allowed under a special use permit.

Use of a hand-held metal detector as a recreational pursuit in search of coins of recent vintage (less than 50 years) and small objects having no historical value does not require a special use permit when conducted on areas which possess no historic or prehistoric resources.*

Rivers

The following direction will be applied to lands in proximity to waterways that are floatable for all or part of the year. These standards are further restricted if the waterway has been given a special classification (See Management Prescription 8.1) or is a candidate for special classification (See Management Prescription 6.3).

Protect and enhance recreational and *scenery* resources on National Forest System lands within at least one-quarter mile of the waterway or more distant lands that can be seen by water travelers.

This river zone will correspond to identifiable stand boundaries based on Forest Plan standards and guidelines for stand delineation.

Waterways which are floatable for at least 10 months of the year *are Concern Level 1 travelways for the Scenery Management*

Waterways which are floatable from 2 to 3 months per year *are Concern Level 2 travelways for the Scenery Management*

Management practices, including construction of minor structures for such purposes as improvements of fish and game habitat, river access, grazing, protection from fire, insects and disease, and rehabilitation or stabilization of damaged resources are permitted. Make provisions so that the area will remain natural appearing, practices or structures will harmonize with the environment, and other applicable Forest Plan standards are met.

When timber management is appropriate or permissible in meeting area objectives, it will be conducted under the uneven-aged silvicultural system.

Mineral exploration will be limited by Forest-wide standards and guidelines stated for Riparian Specialized Habitat (2600) and Mineral Management (2800).

Trails

Design trails to provide a variety of experiences, i.e., scenery, varied topography, natural features.

Trails will be evaluated for potential as National Trails.

Emphasize the completion of the National Forest portions of the Ozark Trail during the Plan period.

Trail development will meet management prescription direction and be based on expressed user interest. Cooperative construction and maintenance agreements should be sought.

Trail signing, especially regulatory signs, will be held to a minimum.

Barrier-free trails will be established only in association with developed sites where use by the handicapped is probable.

Trailheads will be developed to the minimum standard that serves established use. Primary emphasis will be placed on public safety by providing adequate parking space off traveled ways.

Off-Road Vehicles (ORV)

Off-road vehicles shall be permitted in accordance with State law on all roads shown as open on the Forest Plan Transportation Map unless otherwise posted closed. Other use of off-road vehicles on National Forest System lands is prohibited unless on designated ORV trails or the Chadwick Motorcycle Special Use Area.

***Heritage* Resources**

***Regulatory Compliance and Consultation**

Continue cooperative efforts and partnership with the Missouri State Historic Preservation Office (SHPO) - Department of Natural Resources, to assist in Forest compliance with Federal mandates related to historic preservation. Comply with current Memorandum of Understanding (between SHPO and Mark Twain National Forest), Programmatic Agreements, or other requirements regarding implementation of the Forest heritage program.

Consult with the SHPO and Advisory Council on Historic Preservation pursuant to mitigation or treatment of significant heritage resources for which an adverse effect from Forest projects is anticipated.

Consult with Forest archaeological professionals during all stages of project planning to ensure adequate consideration of heritage values.

Scope with interested parties and the public for input on planned treatment of significant heritage resources through the National Environmental Policy Act (NEPA) process, as outlined in the National Historic Preservation Act of 1966, as amended, and its implementing regulations found in 36 CFR 800 (NHPA).

Consult with Native American groups and appropriate cultural/ethnic groups who may have a potential interest in heritage resources, including traditional cultural properties and sacred sites. Consider stated values during the course of planning for forest activities. Include Federally recognized tribal governments and other Native American groups with historical, cultural, or geographic ties to the Forest land base in accordance with implementing regulations of NHPA and NEPA.

Inventory and Evaluation

Ensure that heritage survey coverage is complete, evaluate sites which may be affected by projects, and assess project effects on significant heritage resources prior to decisions related to NEPA and prior to all activities where there is the potential to affect heritage resources. Examples of actions which could adversely affect heritage resources include those of an earth-disturbing nature, transfer of lands from Federal ownership, prescribed burns, removal of structures, and issuance of range permits and other kinds of lease agreements involving potential impacts to Forest lands.

A project will be considered earth disturbing when mineral soil mixing or compaction will occur within the project area or when specific structures such as foundations may be damaged. Consult with a Forest professional archaeologist when projects are planned in previously disturbed areas to assess the likelihood of buried heritage resources.

Plan projects to avoid known potentially significant heritage resources whenever possible, including sites which have not been evaluated or which have been determined to be eligible for listing in the National Register of Historic Places. Consider project deferral or relocation as a means of protecting heritage resources. When avoidance, project deferral, or relocation are not viable options, evaluations shall be completed in accordance with Section 106 (NHPA) to determine site significance and assess project effects.

Protection measures for sites determined to be eligible for the National Register will be planned and overseen by professional archaeologists. Heritage resources located within the "Area of Potential Effect" will be monitored during and following project implementation to ensure the effectiveness of protective measures.

Develop a plan for mitigation of adverse effects to heritage resources found to be significant by formal evaluations when projects cannot be designed to avoid impacts. Mitigation plans will be prepared and implemented pursuant to consultation with the SHPO and Advisory Council on Historic Preservation.

Ensure that Section 106 (NHPA) compliance clauses are contained within all construction and timber contracts and other documentation such as special use permits.

If heritage resources are inadvertently discovered during project implementation, the work shall be halted in the vicinity of the find until the situation is assessed by a professional archaeologist, followed by consultation with the SHPO and development of protective or mitigative measures.

Certified archaeological paraprofessionals may assist professional archaeologists in completing surveys, including prefield research, pedestrian surveys, and documentation of results. All work conducted by paraprofessionals will fall within the direct oversight of professional archaeologists.

Plan for completion of the Forest heritage resource inventory and evaluations of all heritage resources according to provisions set forth in Section 110 (NHPA). Complete formal determinations of eligibility for evaluated sites. Identify appropriate heritage themes for organizing and prioritizing evaluations.

National Register Nominations

Nominations to the National Register of Historic Places will consider both site-specific and multiple properties, with selections based on cultural and educational values as well as on Section 106/110 (National Historic Preservation Act) compliance actions. Prepare management Plans for National Register-listed resources according to provisions set forth in Section 110 (NHPA).

Designate selected Forest sites as Management Prescription 8.1 to ensure continued protection when nominations of significant heritage resources are accepted for listing by the Keeper of the National Register.

Protection

Disclosures of heritage resource locations are prohibited under provisions of the Archaeological Resources Protection Act of 1979 (ARPA) and NHPA. Confidentiality will be maintained in NEPA documentation and GIS or other computerized data bases.

Preserve and protect human remains in their original interred location. Unintentional discovery of human remains during project implementation or remains located during planned archaeological excavations will follow provisions set forth in the Native American Graves Protection and Repatriation Act of 1990. Provisions set forth in Chapter 214, Cemeteries, and Chapter 194, Unmarked Human Burials, Revised Statutes of Missouri, will be adhered to as the applicable state laws governing protection of buried human remains.

Curate archaeological and archival collections in accordance with Federal standards found in 36 CFR 79.

Work with Forest Law Enforcement to monitor heritage sites for impacts from looting or vandalism. Investigations of intentional damage to heritage sites will be governed by the provisions set forth in ARPA.

Monitor and assess any impacts from visitor use or natural deterioration and erosion. Plans for mitigating damage to heritage resources will be prepared and implemented to halt additional site impacts.

Partnerships

To further the goals of the Forest heritage program, seek out and implement partnerships, cooperative programs, and agreements. Continue current successful relationships with the State, other agencies, universities, institutions, and private interests.

Interpretation and Public Education

Develop interpretation programs and materials for designated heritage resources in conjunction with interpretive planning objectives. Public benefit, enjoyment, and education potential will be the primary reasons for selection of heritage sites to be interpreted. Develop signs, tours, exhibits, brochures, and other means of interpretive media in cooperation with the Forest heritage staff.

Develop volunteer outreach and public education programs to promote awareness of, and sensitivity to, the fragile and nonrenewable nature of heritage resources.*

Visual Management

Apply the Visual Management System to all National Forest System lands.

All resource management activities will meet, as a minimum, the Visual Quality Objective (VQO) for each management prescription. The Visual Quality Objective for a specific area is determined by relating the variety class and distance zone/sensitivity level mapped for each district to the visual quality matrix found in the standards and guidelines (2300) for each management prescription.

Except for residue treatment requirements, a short-term reduction, the equivalent of one Visual Quality Objective (VQO), will be allowed for Central Hardwood regeneration or similarly impacting activities. This allows a reduction of a Retention (R) area to Partial Retention (PR) or a Partial Retention (PR) area to Modification (M). In no case will foreground sensitivity level 1 (fg1) or foreground sensitivity level 2 (fg2) areas be reduced below Modification. The Visual Quality Objectives (VQO) will be retained for adjusted areas and should be regained within 20 years after initial entry into the corridor/viewshed. (Not applicable to Management Prescription 5.1)

The duration of regeneration or similar visually impacting activities will be kept within the following limits in fg1 and fg2 areas (Not applicable to Management Prescription 5.1);

In areas having a Visual Quality Objective of Retention and Partial Retention, the negative visual impacts will be mitigated concurrently with or immediately after each phase or activity. Mitigating measures will be completed for each cutting unit or project area before beginning activities in the next sequential block or project area in the same corridor/viewshed. The total lapsed time from initiation of activities to completion of obligations specified by a contract or a project prescription shall not exceed one year for any single cutting unit or project area. Emphasis will be placed on completing all work within these areas in a systematic manner within the shortest practical time.

In areas having a Visual Quality Objective of Modification, the standards are the same as above except the total lapsed time from initiation of activities to completion of obligations specified by a contract or a project prescription shall not exceed two years for any sale block or project area.

Rehabilitate undesirable landscapes (Existing Visual Condition (EVC) TYPE VI) to meet VQO. Prioritize projects as follows:

- (1) Sensitivity Level 1 travelway foreground areas
- (2) Developed Recreation Sites
- (3) Administrative Sites
- (4) Sensitivity Level 2 travelway foreground areas

Enhance visual variety in monotonous landscapes. Prioritize projects by sensitivity levels and distance zones. (Not applicable to Management Prescription 5.1 or 9.1)

Utilize Visual Absorption Capacity (VAC) ELT assessments during project analysis in determining the difficulty, cost and environmental impacts in achieving the VQO.

Locate highly developed and/or disruptive management activities where the VQO and associated VAC are most compatible and result in the least management cost. (Not applicable to Management Prescription 5.1)

Visually sensitive areas are to be critically analyzed and management impacts avoided when VQO's cannot be met.

Recreation Development Sites and improvements will fall within the range of Visual Quality Objectives shown below. The specific VQO for a particular site will be selected by the District Ranger and approved by the Forest Supervisor.

ROS CLASS	DEVELOPMENT SCALE	VISUAL QUALITY OBJECTIVE			
		R	PR	M	MM
Primitive	1	X	-	-	-
Semi-Primitive Nonmotorized	2	X	X	-	-
Semi-Primitive Motorized	2	-	X	X	-
Roaded Natural	3	-	X	X	-
Rural	4	-	X	X	-
Urban	5	-	X	X	X

R = Retention PR = Partial Retention
M = Modification MM = Maximum Modification

Residue treatment requirements are based on Visual Quality Objective, sensitivity level, seen area distance, travel speed, and observer location.

Residue treatment requirements will not be modified to reflect short-term VQO reductions.

Sensitivity levels as mapped for each district shall be used. They may be changed based on changes in field conditions. Criteria for sensitivity level classification 1, 2, and 3 are documented in Forest Plan, Appendix F.

Near foreground zone (Nfg) is a variable width zone up to 300 feet. It will be determined for each project on a site specific basis. The actual depth of this zone must consider actual seen area based on landform and vegetative screening.

Secondary zones are to be used as needed to provide further visual mitigation for residue treatment. This secondary zone will start wherever the Nfg zone ends and extend up to the end point of foreground visual concern, but not greater than 600 feet in depth from the observation point.

The following speed of travel classes will be used in applying the Visual Management System to determine residue treatment needs:

- 0-10 MPH Hiking and riding trails, occupancy sites and use areas.
- 11-35 MPH Low speed roads and motor vehicle trails.
- 36-55 MPH Moderate to high speed roads.

Residue treatment requirements in terms of height above ground surface for the Mark Twain National Forest are:

RESIDUE TREATMENT HEIGHTS FOR DESIGNATED TRAVELWAYS AND
USE AREAS BY SENSITIVITY LEVELS

Visual Quality	Distance Zone	Travel Speed MPH	Sensitivity Level 1 (Mandatory)	Sensitivity Level 2 (Mandatory)	Sensitivity Level 3 (Optional)		
Objective - VQO Retention - R	Nfg (0-300')	0-10	18 inches	N.A.	N.A.		
		11-35	24 inches				
		36-55	30 inches				
	Secondary Zones (up to 600')	0-10	6 feet	N.A.	N.A.		
		11-36	8 feet				
		35-55	8 feet				
Partial Retention - PR	Nfg (0-300')	0-10	18 inches	30 inches	36 inches		
		11-35	30 inches	30 inches	36 inches		
		36-55	36 inches	36 inches	48 inches		
	Secondary Zones (up to 600')	0-10	8 feet	10 feet	12 feet		
		11-35	8 feet	10 feet	12 feet		
		36-55	12 feet	12 feet	12 feet		
Modification - M	Nfg (0-300')	0-10	N.A.	36 inches	48 inches		
		11-35		48 inches	48 inches		
		36-55		48 inches	48 inches		
	Secondary Zones (up to 600')	0-10	N.A.	12 feet	N.A.		
		11-35		12 feet			
		36-55		12 feet			
Maximum Modification-MM	Nfg (0-300')	All speeds	N.A.	N.A.	48 inches		
		Secondary Zones - (up to 600')			All speeds	N.A.	N.A.

Residues generated within administrative or developed recreation sites will be totally removed or chipped and scattered within the near foreground (Nfg) zone.

Normally, residue treatments within sensitivity Level 3 areas will not be required. They may be done at the discretion of the District Ranger to treat unique aspects of a site. Suggested residue treatment requirements for Level 3 areas are provided. They may be made more or less stringent to fit the uniqueness of the situation.

Residue treatment zones by depth requirement will be clearly marked on the ground prior to initiation of a project.

The following averaged Visual Absorption Capacity (VAC) ratings for each ELT in the Mark Twain's Ecological Classification System will be used in evaluating project impacts.

OZARK PLATEAU						DISSECTED TILL PLAINS		
LANDSCAPE CHARACTER TYPE						LANDSCAPE CHARACTER TYPE		
ELT	Pts	VAC	ELT	Pts	VAC	ELT	Pts	VAC
1	30	H-M	21	17	L	51	24	M
2	29	H-M	22	20	M-L	52	28	M
3	30	H-M	23	20	M-L	53	25	M
4	23	M-L	24	26	M	54	22	M-L
5	25	M	25	28	M	55	24	M
6	27	M	26	23	M-L	56	27	M
7	26	M	27	23	M-L	57	24	M
8	26	M	28	29	H-M	58	26	M
9	23	M-L	29	28	M	59	27	M
10	24	M	30	26	M	60	21	M-L
11	23	M-L	31	21	M-L	61	25	M
12	24	M	32	21	M-L	62	30	H-M
13	24	M	33	22	M-L	63	24	M
14	23	M-L	34	28	M	64	24	M
15	25	M	35	28	M			
16	20	M-L	36	25	M			
17	22	M-L	37	23	M-L			
18	26	M	38	25	M			
19	28	M	39	27	M			
20	30	H-M						

VAC ratings are expressed as follows:

Pts Symbol

34-39 H. High. Highest visual absorptive capacity; easiest to achieve desired effects and lowest inherent costs.

29-33	H-M.	High-Moderate.
24-28	M.	Moderate. Moderate visual absorptive capacity, medium difficulty and cost.
19-23	M-L.	Moderate-Low.
13-18	L.	Low. Will absorb little or no visual change; difficult to achieve desired effects and most costly.

The following Visual Management Suitability Matrix will be used in evaluating project proposals. It combines Visual Quality Objectives of management with the capacity of the landscape to absorb disruptive resource management activities. A high numerical rating indicates the potential to meet visual objectives with little difficulty and relatively low cost. A low numerical rating points to caution, difficulty in achieving visual objectives, high associated costs and possibly deferring the proposed project.

VISUAL MANAGEMENT SUITABILITY GUIDE
VAC RATING

VQO	L	M-L	M	H-M	H
R	1	2	3	4	5
PR	2	3	4	5	6
M	3	4	5	6	7
MM	4	5	6	7	8

Interpretive Services

Place emphasis on interpreting management activities that are responsive to visitor interests and concerns.

Limit capital investments for site interpretation to situations where an audience analysis shows the potential for high demand or high use.

Interpretive service action plans will identify the need for interpretive programs.

Emphasize the use of maps and informational brochures to direct the public to areas of interest.

Make maps and brochures available at Ranger District Offices, Supervisor's Office, and during full service season at all trailhead locations. Interpretive programs will be presented only at high use developments using personnel with interpretive training.

2400 Timber Management

Harvesting

Forest-wide timber management standards and guidelines are not applicable to Management Prescription 5.1 or 9.1.

The even-aged silvicultural system will be the featured timber management system on the Forest.

Where even-aged silviculture is applied, clearcut and shelterwood are acceptable regeneration harvest cutting methods for oak-hickory, oak-pine, shortleaf pine, and eastern redcedar types. The seed tree method is acceptable for shortleaf pine and eastern redcedar.

Clearcutting will be used when it is the optimum method to achieve the multiple use prescription. See Appendix D - Harvest Methods for discussion of timber practices and their application.

Harvesting schedules for 10-year plan periods starting with Fiscal Year 1986, will emphasize the attainment of the area control objective for each management area under the even-aged silvicultural system. Annual harvest schedules will be designed to attain decade area control objectives while providing for a relatively even-flow of annual timber volume. This will be done by controlling the sales offered each year on a District basis. The attainment of area control objectives will normally take priority over volume levels when conflict occurs.

Stands with specific vegetative objectives that cannot be met through even-aged management practices may be managed under the uneven-aged silvicultural system.

Emphasis during the 10-15 year plan period will be to identify those species/ELT situations that permit application of the uneven-aged silvicultural system.

The application of the uneven-aged system will use the group selection cutting method to obtain regeneration and improvement cuts to develop diameter distribution objectives. Group size will be from 0.25 to 2 acres.

The single tree selection cutting method may be used when regeneration of intolerant species is not a primary objective.

To the extent commercial harvesting is appropriate, wet mesic bottomlands (ELT's 1, 2, 3, 4, 5, 6, 39, 56, 59, 61, 62) and specialized wildlife habitats identified by this Plan will be managed under the uneven-aged silvicultural system to achieve wildlife habitats and emphasize large diameter trees relative to species and site capability. Shortleaf pine forest areas not associated with these special areas will be managed under the even-aged silvicultural system.

Lands suitable for timber management on the Cedar Creek District will be managed under the uneven-aged silvicultural system. Emphasis will be placed on demonstrating effective wood lot management concepts.

Within the Cedar Creek District, maintain at least an average of 23 suitable roost trees/acre on National Forest System lands woodland habitat acres. Suitable roost trees should include the following: live shagbark and shellbark hickory trees $\geq 9"$ dbh; lightning struck trees $\geq 9"$ dbh; dead or dying trees $\geq 9"$ dbh with at least 10% exfoliating/defoliating bark; den/cull trees; and live trees $\geq 26"$ dbh. Retain, as available and to the maximum extent possible and logistically practical, any existing dead trees $\geq 20"$ and any tree $\geq 26"$, unless a human safety hazard. Maintain existing amount of 60% - 80% canopy closure in mature oak woodlands.

Lands suitable for timber management within the seven sensitive areas: Smith Creek, Van East Mountain, Lower Rock Creek, Swan Creek, Spring Creek, North Fork, and Big Springs Addition, will be managed under the uneven-aged silvicultural system. Emphasis will be on growing trees of large diameter relative to species and site capability.

Stands with a white oak component occurring on Ecological Landtypes 7 and 18 may be managed under the uneven-aged silvicultural system to the extent overall objectives are most effectively met.

Stands composed of eastern red cedar in the Cedar-Glade LTA may be managed under the uneven-aged silvicultural system to the extent overall management area objectives are most effectively met.

In applying uneven-aged silviculture the desired maximum tree diameter quotient value (q), basal area objective, and cutting cycle will be determined for each management area and marking unit by ELT.

Commercial thinning must retain at least B-level stocking of acceptable growing stock trees, except when other stocking levels are necessary to meet multiple use objectives.

Eastern redcedar may be managed on ecological landtypes where it is a dominant or characteristic species of the natural community.

Rotation ages for eastern redcedar stands managed for other than old growth objectives are 40 to 90 years during the pre-regulated condition and 50 to 80 years in the regulated condition.

Manage eastern redcedar to obtain at least 175 crop trees per acre at 10 years prior to final harvest unless variance is needed to meet multiple use objectives.

Stands may be regenerated when they have reached the culmination of mean annual increment. For shortleaf pine culmination occurs at 45 years; for upland oaks at 55 years; and for eastern redcedar at 40 years. Exceptions for earlier regeneration are permitted for harvesting timber stands damaged by natural catastrophe, and to meet multiple use objectives.

Generally, the first priority for regeneration under the even-aged silvicultural system will be to achieve wildlife habitat distribution objectives.

The maximum amount of suitable land to be regenerated this plan period will be that necessary to meet wildlife habitat objectives in a management area except as required to respond to a natural catastrophic condition.

Fuelwood will be made available to the extent the attainment of overall management area objectives can be met and to the degree the program can be effectively implemented.

Temporary Openings Created by Even-aged Silviculture

Minimum stand size for record keeping purposes is one acre. Minimum stand size for timber production normally will be 10 acres.

Openings will be separated by a stand of at least manageable size and configuration (normally 10 acres or larger).

An opening will no longer be considered an opening when the stand has reached a height of 20 feet.

Temporary opening size in excess of the maximum by management prescription standards and guidelines may occur:

- a. On an individual sale basis after 60 days public notice and review by the Regional Forester.
- b. Due to natural catastrophic conditions caused by fire, insect and disease, or windstorm when based on an environmental analysis approved by the Forest Supervisor.

Catastrophes caused by insects and disease which will result in openings in excess of 40 acres will require the following documentation:

Biological evaluation of a Forest Pest Management Specialist, to include:

An assessment of the insect and/or disease situation.

A prediction of damage to be expected from past and expected attacks.

Silvical evaluation by a certified silviculturist, to include:

An assessment of the stand condition (species, size classes, quantity and quality of stocking) that exists as a result of the natural catastrophe, and which is expected to develop.

Determination of whether the stand is/will be understocked to meet overall Management Area objectives when salvageable material is removed.

Recommendation for treatment needed to regenerate the stand in a manner that complements the overall Management Area objectives.

Detailed silvicultural prescription which best meets overall Management Area objectives.

Management Intensity and Utilization

Only lands suitable for timber production will receive timber investment except in the case of salvage.

The volume of timber sold will not exceed that for Fiscal Year 1986 until timber sale receipts equal or exceed timber management costs as defined by budgeting and accounting procedures.

For the purpose of determining harvest levels, the following utilization standards will be used in preparing timber sales. (36 CFR 219.9).

Product Type	Minimum Tree Specifications	1/	Minimum Piece Specifications	
	DBH (inches)	Length (feet)	DIB at Small End (inches)	Percent of Gross Measure
Hardwood Sawtimber	11.0	8	9.6	40%
Local use log 3/	9.0	8	7.6	90%
Boltwood 4/	7.0	8	5.6	90%
Pine Sawtimber	9.0	8	7.6	40%
Cedar Sawtimber	6.0	7	5.0	40%
Pulpwood, fuelwood, and acidwood	5.0	8	4.0	70% Sound 5/, and reasonably straight 6/
Hardwood Post	5.0	8	3.0	100% Sound and Reasonably straight
Pine Post	4.0	8	3.0	100% Sound and Reasonably straight
Cedar Post	4.0	7	3.0	100% Sound and Reasonably straight

-
- 1/ A minimum tree must include at least one piece that meets minimum specifications.
 - 2/ Plus trim allowance.
 - 3/ A local use log is one that is being utilized as pallet lumber and blocking and meets the piece specifications. Where there is a market for boltwood, the local use logs will be included in the boltwood estimate and appraised as miscellaneous hardwood sawtimber. If boltwood is not marketable, the local use log could be included with the sawtimber volume and the utilization standard for sawtimber trees could be lowered to 9.0 inches dbh.
 - 4/ Boltwood is small hardwood material processed in 4 foot or longer lengths.
 - 5/ Seventy percent applies to rot, voids, and char. Mechanical type defects, such as sweep, crook, spider heart, and ring shake shall not be considered as deductions for soundness.
 - 6/ Reasonably straight is when the true center line of a minimum length piece does not deviate more than one-half the inside diameter of the small end, plus 1 inch from a straight line drawn between the centers of the ends of the piece.

Reforestation

Lands cut over for timber production objectives must be adequately restocked within five years after final harvest. Five years after final harvest means five years after clearcutting, five years after final overstory removal in shelterwood cutting, and five years after the seed tree removal cut in seed tree cutting or five years after selection cutting.

Adequate stocking means the establishment of at least 435 stems per acre of acceptable growing stock species.

Acceptable growing stock species common to ecological land types 7 through 33, 37, 51 through 57, 60, 63, and 64 are: (Reference Forest-wide standards and guidelines 1900 - Vegetation, for natural community species composition by ELT).

Acceptable Growing Stock Species for Upland Sites

<u>Site Class 1/</u>	<u>Preferred Species</u>	<u>Acceptable Species</u>
65+	black oak, northern red oak, white oak, black walnut, yellow-poplar	green ash, white ash, blackgum, hickory, scarlet oak, shingle oak, southern red oak, shortleaf pine, eastern redcedar, post oak, black cherry
55-64	black oak, northern red oak, white oak, shortleaf pine	white ash, blackgum, hickory, chinkapin oak, post oak, scarlet oak, southern red oak, eastern redcedar, black walnut, black cherry
45-54	black oak, white oak, shortleaf pine	hickory, black locust, chinkapin oak, post oak, scarlet oak, eastern redcedar
Below 45	eastern redcedar	All species that will meet minimum utilization standards

1/ Site classes are expressed in feet of height growth in fifty years for black oak.

Acceptable growing stock species common to ecological land types 1 through 6, 35, 36, 38, 39, 58, 59, 61, and 62 are: (Reference Forest-wide standards and guidelines 1900 - Vegetation for natural community species by ELT)

Acceptable Growing Stock Species for Bottomland Sites

Acceptable Species

green ash, white ash, basswood, river birch, black cherry, cottonwood, American elm, hackberry, hickory, red maple, silver maple, sugar maple, black oak, bur oak, chinkapin oak, Nuttall oak, northern red oak, overcup oak, pin oak, shingle oak, Shumard oak, swamp white oak, white oak, willow oak, sweetgum, sycamore, water tupelo, black walnut, yellow-poplar

Stand treatments will be prescribed and implemented in a manner that insures the retention of a representative component (at least 5 square feet of basal area per acre) of woody species, other than those recognized as acceptable growing stock, which have importance as wildlife food and cover when they are present in the stand to be treated. Examples of such species are:

butternut	white mulberry
bumelia	honey locust
paw paw	blackjack oak
red mulberry	sassafras
persimmon	red bud
serviceberry	flowering dogwood
plum	

Planting, direct seeding, or natural regeneration are acceptable methods of reforestation. Their use is qualified by management prescription.

Where natural regeneration is a desired option, preharvest regeneration surveys must be made.

If adequate regeneration is present, reforestation may be through natural regeneration techniques using clearcutting. Other cutting methods may be used if management area objectives are more effectively met.

If adequate regeneration is not present, implement preharvest site preparation measures to enhance its development. Use the seed tree, shelterwood, single tree or group selection harvest cutting methods as appropriate to meet management area objectives.

Where artificial regeneration is desired, a preharvest regeneration survey need not be made.

When shortleaf pine seeding or planting is permitted in a management area, genetically improved seed or stock will be used.

Site preparation shall be done on a cost effective basis, taking into account future release needs.

Site preparation techniques, such as tree felling, scarification, prescribed fire, or herbicide application may be employed.

Mechanical site preparation is not permitted within 100 feet of a trail.

Stocking surveys will be conducted in advance of harvest or the first and third years after final harvest.

Survival plots will be established for planted areas. Survival will be measured on an individual tree basis at 12 months and 36 months after plot establishment.

Timber Stand Improvement

Release criteria for the even-aged management of pine, hardwoods, mixed hardwood-pine and eastern redcedar are:

- a. Once per rotation.
- b. Made no later than 10 years of age for shortleaf pine and eastern redcedar.
- c. Made no later than 15 years of age for hardwood and hardwood-pine stands.
- d. Stands with site productivity equal to or greater than 50 cubic feet per acre per year for the managed species. Eastern redcedar requires a site productivity equal to or greater than 30 cubic feet per acre per year.

Precommercial thinning for even-aged management may be scheduled in stands which will not be merchantable within 10 years. Precommercial thinning criteria for the even-aged management of pine, hardwoods, mixed hardwood-pine and eastern redcedar are:

- a. Once per rotation
- b. At 10 to 30 years of age for shortleaf pine and eastern redcedar.
- c. At 15 to 35 years of age for hardwoods and hardwood/pine stands.
- d. Stands with site productivity equal to or greater than 50 cubic feet per acre per year for the managed species. Eastern redcedar requires a site productivity equal to or greater than 30 cubic feet per acre per year.

Precommercial cultural treatments may be applied each entry period to achieve structure objectives for stands managed under the uneven-aged silvicultural system.

Cultural objectives will be met through commercial practices or through firewood cuts whenever possible.

Fuelwood operations may be used to achieve release and precommercial thinning objectives even if these practices are not permitted by management area direction with appropriated funds.

Precommercial cultural treatments will be designed to ensure the residual stand meets the stocking guide objectives for acceptable growing stock for the forest type being managed unless variance is needed for specific multiple use objectives (i.e., wildlife habitat stand structure).

Pruning is acceptable only in black walnut stands.

Sale Preparation and Administration

Log landings are prohibited within 100 feet of a recreation trail.

Where skidding across a recreation trail is unavoidable it will be done at a right angle and at designated locations.

Timber sale purchasers are to be encouraged to have the minimum length of roads and skid trails in use at any given time.

Ephemeral watercourses will not be used for roadways or skid trails.

As a general rule, watercourses designated as perennial on the Aquatic Ecological Classification System maps for the Forest shall be designated on the sale area map for protection under BT Clause 6.5. Filter strip standards will be applied when project activities impact these water ways (Reference Forest-wide standards and guidelines 2500). In addition, streamcourses upstream from those having a defined stream channel will be considered for similar protection on a case-by-case basis. The need for additional protection must be determined by on-site inspection and will be applied when project design creates a likely risk of siltation or channel disruption.

Except as modified by standards and guidelines for special areas (1900), soil and water (2500), specialized habitat (2600) and other management area direction activities permitted in filter strips are:

Winching or animal skidding away from channels.

All regeneration and intermediate cuts.

Prescribed burning exposing bare mineral soil on less than 20% of the treated area.

Timber stand improvement.

Activities prohibited in filter strips are:

Operation of wheel or crawler-type vehicles except for occasional use to remove trees that cannot be winched out or for fire suppression. Limit use to dry seasons or when ground is frozen except on slopes less than 3%.

Permanent and temporary roads and skid trails except at designated crossings.

Mechanical site preparation.

Log landings.

Prescribe burning exposing bare mineral soil on 20% or more of the treated area.

Temporary Roads

Temporary roads may be used in supplementing the permanent road system to provide access within effective economical skidding distance. The most effective combination of temporary roads and skid roads will be determined for each sale area while considering logical logging units and overall management area direction.

The sale purchaser and sale administrator will meet on the sale area and working together mark the location of each temporary road and log landing. Locations must be approved by the sale administrator before the start of their construction.

Temporary road, skid road, and skid trail development standards and closure measures are documented under Forest-wide standards and guideline Section 7700.

Log landing rehabilitation shall consist of:

Reshaping the landing prior to revegetation.

Ditching or water barring to provide proper drainage into a filter strip.

Revegetation of all exposed mineral soil.

2500 Water and Soil Resource Management

Operations

The Forest Service, its permittees, and contractors, shall comply with or exceed all requirements of the State Water Quality Plan.

Management practices will be designed to minimize non-point pollution.

Maintenance of water quality will be achieved by the application of best management practices as defined by Forest Plan standards and guidelines.

Minimize soil compaction by curtailing the use of heavy equipment during extended wet periods on soils highly subject to compaction.

Soil scarification or ripping practices may be used in meeting restoration objectives when soil compaction limits effective revegetation or has resulted in reduced soil productivity.

The following filter strip widths will be used. Exceptions for smaller filter strips may be made if T-value standards listed under Soil Production 2500 are met and other resource objectives are not jeopardized.

Include in the filter strip only the area to the break of the slope when the slope adjacent to the watercourse is shorter than the filter strip width shown below. Disregard benches less than 50 feet in width within the filter strip.

The minimum filter strip (the initial 100 feet of larger filter strips) complement buffer zones recognized by standards and guidelines for specialized habitats.

Width of Filter Strip by Percent Slope for Each Side of Stream to be Protected

	Precent Slope						
	0	10	20	30	40	50	60
	-----Filter Strip Width, Feet-----						
Perennial:	100	100	130	170	210	250	290
Intermittent:	100	100	130	170	210	250	290

Fertilizer applications shall not exceed the soil's nutrient retention capacity. (Fertilizer applications are not applicable to Management Prescriptions 5.1 or 9.1)

Riparian area management will emphasize their protection and improvement as specialized wildlife habitat and the enhancement of their visual quality to complement recreational use. Reference Forest-wide Standards and Guidelines 2300 - Rivers and 2600 - Riparian Specialized Habitat.

Limit heavy equipment use in filter strips and stream sides to the dry season or when the ground is frozen. Reference Forest-wide Standards and Guidelines 2400 and 2600 for additional filter strip and riparian zone requirements.

Dredge and fill activities shall comply with Corps of Engineer permit requirements.

All activities of the Forest Service and its permittees shall comply with provisions of Executive Order 11988 (Floodplain Management) and 11990 (Wetland Protection).

The Mark Twain National Forest Terrestrial Ecological Classification Inventory identifies floodplain ELT's.

The following additional guidelines shall be applied to all facilities, structures, and other major investments in floodplains:

Floodplain location shall be avoided to the extent possible and practical.

Where floodplain avoidance is impossible or impractical, investment costs will be kept to the minimum necessary to accomplish the basic objectives so that financial losses and repair or replacement costs in event of flooding are minimized.

Developed recreation areas on the floodplain will be designed, constructed, operated, maintained, and repaired in the following manner:

Floodplains will be developed only in response to identified public recreation or resource protection needs.

Recreational development will be the minimum which satisfies the ROS classification and development scale and/or resource protection needs.

The most frequently flooded portion of the floodplain will be avoided to the extent practical.

Floodplain facilities will be inexpensive to replace or sufficient to physically resist or otherwise avoid damage by floodwaters, whichever offers the best resource protection at the least cost in the long run.

The Mark Twain National Forest Aquatic Ecological Classification inventory identifies wetlands (palustrine aquatic type associations).

Wetlands will have a minimum of a 100 foot wide peripheral zone within which any management prescription will be modified on a case-by-case basis to: (Not applicable to Management Prescription 5.1)

Maintain and improve wetland values.

Comply with the riparian area management standards and guidelines including those identified for wildlife species with specialized habitat (standards and guidelines 2600).

Comply with river corridor management (standards and guidelines 2300).

Comply with Executive Order 11990 for wetland management.

Protect the visual resource.

Protect and enhance natural plant and animal communities.

Soil Productivity

Maintain soil productivity and enhance through natural processes.

Control accelerated erosion.

The Mark Twain National Forest Terrestrial Ecological Classification System Report and its interpretations will be used to evaluate soil management impacts relative to ecological landtypes when designing cultural practices.

All practices of the Forest Service, its permittees and cooperators shall use the following criteria in assessing adequacy of treatments in maintaining soil productivity.

No vegetative manipulation or utilization practices shall cause average annual soil loss to exceed Soil Conservation Service T-values. See ECS reports for exact T-value interpretations by ELT and soil series.

GUIDELINES FOR T VALUES (TONS/ACRE/YEAR)

Criteria	5	4	3	2	1
> 40" to Bedrock	X				
> 40" to Sand and/or gravel	X				
20-40" to Bedrock		X			
20-40" to Sand and/or gravel		X			
20-40" to Fragipan		X			
20-40" to Claypan		X			
10-20" to Sand and/or gravel			X		
10-20" to Bedrock				X	
4-20" to Claypan			X		
< 20" to Fragipan			X		
< 10" to Bedrock					X
< 10" to Sand and/or gravel				X	
< 4" to Claypan					X

Vegetative manipulation and utilization practices which are applied at intervals shall not create conditions likely to cause soil loss during the first 12 months after disturbance in excess of the following on all soils except Gasconade and Ramsey soil series and the Granite Glades.

1.0 times the Soil Conservation Service T-values on sites with a low or medium natural soil improvement potential.

1.5 times the Soil Conservation Service T-value on sites with a high natural soil improvement potential.

On the Ramsey and Gasconade soil series and Granite Glades no vegetative manipulation or utilization practices shall create conditions likely to cause average annual on-site soil loss in excess of formation rate over the life of the practice.

Until the results of the cooperative research study on Gasconade soils can be incorporated in Forest Plan standards and guidelines, current practices will be applied.

Restoration objectives of highly disturbed areas, such as borrow pits, mined areas, and drill sites, will be determined on a case-by-case basis considering opportunity, economics, surrounding landscape, area objectives, and other pertinent factors.

Stream channelization on National Forest System lands by the Forest Service and others will only be done in emergency situations and only in the event that stream course stabilization is not practical.

Sedimentation of waterways shall be prevented or minimized where earth moving jobs such as road construction, drill site benching, or similar activity unavoidably bares sizeable areas of soil for extended periods of time.

2600 Wildlife * and Fisheries * Habitat Management

General

Forest-wide Wildlife Management Standards and Guidelines are not applicable to Management Prescription 5.1.

*Aquatic habitats shall be managed to maintain viable populations of existing native, naturalized, and desired non-native vertebrate species. Fish populations will be maintained through habitat protection and enhancement, stocking programs, and angling regulations.

Intensively manage for aquatic Regional Foresters Sensitive Species (RFSS) and Federal Threatened and Endangered (T&E) vertebrate and invertebrate species, including re-introductions.

All proposals for fisheries or aquatic habitat improvement will be evaluated by a Forest Service biologist and/or a Missouri Department of Conservation (MDC) Fisheries biologist or aquatic ecologist in consultation with the USDI Fish and Wildlife service prior to implementation. Project proposals will complement MDC's Fisheries Division Watershed Assessment and Inventories and comply with the State of Missouri, Water Quality Plan. When required under Section 404 of the federal Clean Water Act, a permit will be obtained from the Corps of Engineers to conduct in-stream activities. Structure work should emphasize natural looking habitat improvement structures. Heavy equipment use in a stream is limited to the amount of time essential for the project completion.

Fish passage in streams will not be blocked or prevented unless done in conjunction with prescribed fish management objectives. Expansion of Off-road vehicle and horse trail rides will be evaluated from a water quality standpoint.

Large Woody Debris (LWD) is a primary pool forming agent in small to medium size streams; therefore, remove fallen trees from streams only if they are safety hazards. This will insure there are sufficient amounts and sizes of woody debris to provide self-sustaining habitat complexity and diversity.

Waterfowl hunting will be permitted on Fourche, Crane, and Council Bluff lakes outside of the designated recreation zones. Waterfowl hunting on other impoundments having designated recreation zones will be permitted only in conjunction with closure of that zone for public safety by the District Ranger.

The Eleven Point River (headwaters to Highway 142) and Current River (headwaters to Northern Ripley County Line) are outstanding national resource waters. Indian Creek, Little Piney Creek, Mill Creek, North Fork White River, Noblett Creek, and Spring Creek are outstanding state resource waters. Both outstanding national and state resource waters shall comply with State of Missouri 'anti-degradation' policy 10CSR20-7.031 (2) Anti-degradation.

Fishing impoundments:

Implement Fisheries Management Plans for Beaver, Council Bluff, Crane, Fourche, Loggers, Pinewoods, and Ripley lakes. Plans should be updated and revised every 10 years. The District Ranger (FS) and Fisheries District Supervisor (MDC) are the Approving Officers for the original plan and subsequent updates.

Wildlife and Fisheries management opportunities will be evaluated and programmed as warranted for each impoundment that is acquired or built in the future. Development of Fisheries Management Plans for new or existing lakes is permitted.

Structures, fish attractors, lake fertilization and/or fish feeding are allowed to increase productivity.

Control of nuisance aquatic vegetation is permitted. Chemical control may be used when mechanical or biological weed control is impractical, either because weeds are too abundant for mechanical control methods or high watershed ratios (> 40:1) prohibit the use of white amur. Before using chemicals, analyze potential contamination of domestic water supplies and the waiting periods for watering livestock, eating fish, swimming, and irrigation.

Waters may be managed for put-grow-take fisheries.

New impoundments (lakes) will be considered in counties that have been identified by MDC as lacking lake fishing opportunities.

Cold water streams:

Intensively manage for naturalized trout species, including put-grow-take, in streams where they now exist. Manage for native species in those streams where trout do not exist, trout (native or naturalized) will not be introduced into these streams. Timber harvest is prohibited in riparian areas along self-sustaining trout streams. New impoundments (pools) are prohibited on wild trout streams.

Cold water streams will be managed in a manner that results in:

- a) a daily summer maximum temperature of 68 degrees Fahrenheit or lower.
- b) dissolved oxygen values greater than 6.0 ppm.
- c) a canopy closure of 75-100% on all trout streams less than 25 feet wide.
- d) avoid in-stream activities between November 15 and February 15 which can adversely affect trout spawning.

Cool water streams:

Cool water streams should be managed to achieve self-sustaining small-mouth bass, goggle eye, and other naturally reproducing aquatic populations or other populations maintained by releases of hatchery-reared fish.

Cool water streams will be managed in a manner that results in:

- a) a maximum summer water temperature of 84 degrees.
- b) dissolved oxygen values greater than 5.0 ppm.
- c) a canopy closure of 50-100% on all permanent streams less than 25 feet wide.
- d) minimize in-stream management activities between March 15 to June 15 that would increase sedimentation and adversely affect spawning.

Warm water streams:

Warm water streams should be managed to achieve a self-sustaining largemouth bass, bluegill, and other naturally reproducing aquatic populations.

Warm water streams will be managed in a manner that results in:

- a) a maximum summer water temperature of 90 degrees Fahrenheit.
- b) dissolved oxygen values greater than 5.0 ppm.
- c) a canopy closure of 50-100% on all permanent streams less than 25 feet wide.
- d) minimize in-stream management activities between March 15 to June 15 that would increase sedimentation and adversely affect spawning.*

Endangered and Threatened Species

Carry out Forest Service responsibilities for the conservation of endangered and threatened species identified through interagency consultation with U. S. Fish and Wildlife Service.

*The following federally-listed species or species proposed for federal listing are those U.S. Fish and Wildlife Service considers potentially affected by management of the Mark Twain National Forest; and for which consultation is required.

Common Name	Scientific Name	Status
Mead's milkweed	<i>Asclepias meadii</i>	Threatened
Hall's bulrush	<i>Schoenoplectus hallii</i>	Proposed candidate
Running buffalo clover	<i>Trifolium stoloniferum</i>	Endangered
Tumbling Creek cavesnail	<i>Antrobia culveri</i>	Candidate
Topeka shiner	<i>Notropis topeka</i>	Proposed
Curtis' pearly mussel	<i>Epioblasma florentina curtisi</i>	Endangered
Pink mucket pearly mussel	<i>Lampsilis orbiculata</i>	Endangered
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened
Gray bat	<i>Myotis grisescens</i>	Endangered
Indiana bat	<i>Myotis sodalis</i>	Endangered

*

Develop and implement management direction for each bald eagle and osprey nesting area, and great blue heron colony. Direction will include the following requirements:

Prohibit controllable disturbances within 330 feet of each bald eagle nest, osprey nest, or great blue heron colony, except as needed to protect the nest or colony.

Prohibit significant changes in the landscape within 660 feet of any bald eagle nest, osprey nest, or great blue heron colony.

Restrict management practices that result in disturbance to nesting birds within 1320 feet of a bald eagle nest, osprey nest, or great blue heron colony during the nesting period.

*Protect bald eagle communal night roosts and concentrations discovered on National Forest System lands.

Protect super-canopy or other congregation roost trees on National Forest System lands along major rivers and lakes.

Maintain gray and Indiana bat habitat as follows:

Determine protection needs for caves ORE-G2, ORE-G5, and ORE-G3 to minimize human visitation during periods of gray bat use.

Continue protection of one Indiana bat cave in Oregon County (ORE-019) and one Indiana bat cave in Iron County (IRN-001).

Protect Indiana bat maternity sites discovered on National Forest System Lands.

Determine an area of influence for the following:

Each occupied Indiana bat hibernacula on or adjacent to National Forest System Lands (not to exceed 5 mile radius)

Each capture site of a reproductively active (pregnant/lactating) female caught between May 15-Aug 15 on or adjacent to Mark Twain National Forest(not to exceed ¼ mile radius).

Any Indiana bat maternity colony discovered (not to exceed ¼ mile radius).

Develop a management recovery strategy for national forest system lands within each area of influence defined above. Management recovery strategies will include vegetative objectives for providing a continuous supply of suitable roost trees and preferred foraging habitat.

Maintain at least an average of 23 suitable roost trees/acre on National Forest System lands woodland habitat acres. Suitable roost trees should include the following: live shagbark and shellbark hickory trees ≥ 9 " dbh; lightning struck trees ≥ 9 " dbh; dead or dying trees ≥ 9 " dbh with at least 10% exfoliating/defoliating bark; den/cull trees; and live trees ≥ 26 " dbh. Retain, as available and to the maximum extent possible and logistically practical, any existing dead trees ≥ 20 " and any tree ≥ 26 ", unless a human safety hazard.

Within an Indiana bat maternity colony buffer zone, maintain at least an average of 24 suitable roost trees/acre and 30% - 50% of the area in a preferred canopy closure (60% - 80%). Consult with U.S. Fish and Wildlife Service before removal of a known maternity roost tree determined to be a safety hazard.

Monitor population numbers, number of suitable roost trees, and amount of preferred foraging habitat available to Indiana bat as specified in the June 23, 1999 Biological Opinion issued by U.S. Fish and Wildlife Service.

Determine necessary precautions to be taken on project areas where available information indicates a probability of threatened, endangered, rare, or sensitive species occurrence.*

Plant and animal species listed as endangered or rare by the State of Missouri will be considered Species of Concern to the Forest. Standards and guidelines are designed to protect and enhance their population and habitat. See Appendix H for the recognized list as of January 1985. This list will be maintained as information and conditions evolve.

When Species of Concern or their habitat are encountered, projects will be modified as necessary to ensure the continued existence of the species as a viable population. If it is determined that management practices jeopardize the survival of a Species of Concern as a viable population, that species will be evaluated for nomination as a Regional Sensitive Species under Regional Forester authority. As of January 1986 there are no Regional Sensitive Species identified.

Plans for the reestablishment of extirpated species approved by the Missouri Department of Conservation and the U. S. Fish and Wildlife Service will be supported to the extent overall Forest Plan objectives can be met. Habitat objectives identified by standards and guidelines will provide a suitable environment. Conflict between Forest Plan direction and approved reestablishment plans may require reanalysis of Plan direction.

During the Plan period the completion of an inventory of threatened, endangered, rare and sensitive species and species of concern will be emphasized. This will be done in coordination with the Missouri Department of Conservation in the establishment of the Heritage Data Base.

Species with Specialized Habitats

Species requiring specialized habitats will receive priority where encountered. The following specialized habitats are recognized. Emphasize the inventory, identification and protection of species associated with these specialized habitats.

- Caves
- Springs, seeps, and fens
- Riparian areas
- Bottomland hardwood forests
- Glades
- Shortleaf pine forest
- Fishless ponds and temporary pools

Federal and State Threatened and Endangered Species, Species of Concern (Appendix H), and the other species listed will be used as indicator species for these specified habitats as appropriate.

Caves

Specialized habitat associated with caves will be managed as follows: (also reference Forest-wide standards and guidelines 1900 - Special Areas)

Recommendations in "An Inventory and Evaluation of Cave Resources of the Mark Twain National Forest" (Gardner, 1982) concerning wildlife needs will be implemented.

An area of at least five acres centered on and completely surrounding a cave entrance shall be designated for permanent old growth management.

*Designate a minimum 20 acres of old growth around each occupied gray or Indiana bat cave to include cave entrance, area above any known cave passage, foraging corridor (minimum of 100 feet wide) to nearest water, and ridgetops/side slopes around the cave.

Maintain an additional 130 acres of mature/overmature overstory around each Indiana bat hibernaculum on National Forest System lands.*

Insecticides or herbicides shall not be used within the surface and known subsurface watersheds of caves utilized by the Indiana bat, gray bat, Ozark cave fish, or any State endangered or rare species except as used for incidental house keeping purposes.

Unless it can be documented that a specific herbicide will have no adverse impact on a cave environment, its use will be limited to individual stem applications when within the surface and known subsurface watershed of caves not containing threatened, endangered or rare species. An exception will be made for herbicides registered for watercourse bank or instream use. Exception will also permit use for incidental house keeping purposes.

The following species are recognized as using cave habitats.

Keen's Bat
Indiana Bat (Federal and State Endangered Species)
Gray Bat (Federal and State Endangered Species)
Little Brown Bat
Least Bat
Eastern Pipistrelle
Pickerel Frog
Big Brown Bat
Grotto Salamander
Longtailed Salamander
Cave Salamander
Graybelly Salamander
Southern Cave Fish

Springs, Seeps and Fens

Specialized habitat associated with springs, seeps and fens will be managed as follows: (Also reference Forest-wide standards and guidelines 1900 - Special Areas)

Seeps and fens will be recognized as significant wildlife habitat in compartment prescriptions.

Year-round springs will be recognized as significant wildlife habitat in compartment prescriptions.

A buffer zone of at least 100 feet in radius will be recognized in association with significant seeps, fens, and springs.

Within these buffer zones, fire, (unless ecologically supported), grazing, significant soil disturbance, use of chemicals, construction of sanitary facilities, cultivation, and stream alteration shall be prohibited.

Livestock access will be precluded within 100 feet of these sites except as follows:

Where livestock use of a spring is occasional and intermittent and judged by the District Interdisciplinary Team to have no adverse impact, no special measures to preclude livestock use will be required.

Skidding and decking of forest products is prohibited within the buffer zone of seeps, fens, and springs.

When a recognized area also has high public use, foot traffic will be concentrated on established trails.

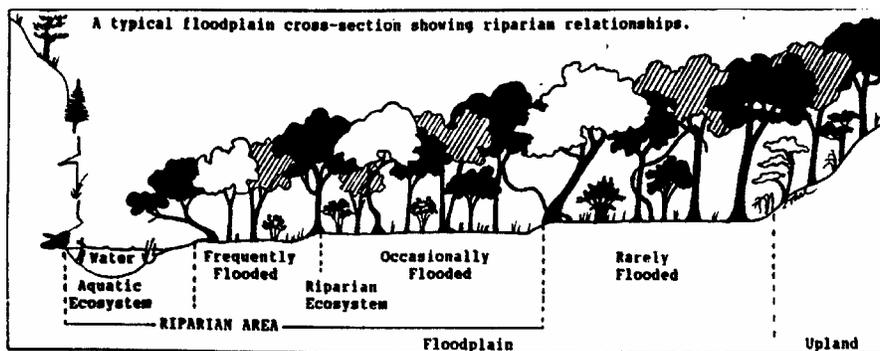
Water run-off from roads will be diverted before reaching buffer zones associated with those special habitats.

The following species are recognized as using springs, seeps, and fens:

Oklahoma Salamander (State Rare Species)
Four-toed Salamander (State Rare Species)
Longtailed Salamander
Dark-sided Salamander
Cave Salamander
Graybelly Salamander
Ozark Zig-Zag Salamander
Southern Red Back Salamander
Slimy Salamander
Grotto Salamander

Riparian Areas

Riparian areas will be managed according to the following guides. The following definitions apply to the riparian environment:



Riparian Areas: Geographically delineable areas with distinctive resource values and characteristics that are comprised of the aquatic and riparian ecosystems.

Aquatic Ecosystem:

The perennial stream channel,
permanent pools,
lake or estuary bed,
water biotic communities, and the habitat features that occur therein.
(Pools are considered "permanent" when water is present in late summer following at least three weeks without rain.)

Riparian Ecosystem: A transition between the aquatic ecosystem and the adjacent terrestrial ecosystem; identified by a combination of soil characteristics and potential to support natural vegetative communities (that require) free or unbound water for some portion of the year.

All three elements must be present to constitute a riparian ecosystem.

The aquatic ecosystem will be managed to ensure the protection of water quality, retention of free-flowing conditions, and the restoration, maintenance, and enhancement of fish and wildlife habitat under Forest-wide and Management Prescription Standards and Guidelines.

Designate a ¼ mile wide old growth corridor on National Forest System lands along waters edge of Table Rock Lake, Wappapello Lake and other traditional bald eagle wintering areas.

Within the riparian ecosystem as a whole:

Protection, reestablishment, and management of potential natural communities (PNC) is the primary management objective.

New recreation developments and improvements to existing facilities, including all types of trails, will be designed to minimize impacts to riparian ecosystems, while being responsive to public use objectives. Development should be based on an overall perspective of river needs, particularly on candidate rivers for National study. Recreation facilities should be limited to low-cost or flood-resistant improvements designed to endure occasional flooding.

Where practical, sanitation facilities should not be located within the riparian ecosystem, particularly in frequently flooded portions.

Private accesses acquired through land adjustment should remain closed to public vehicular access until such time that planning supports their development as public access.

To the extent possible, use of heavy equipment will be limited to dry or frozen periods and such equipment will be operated perpendicular to the water course.

Water run-off from roads near riparian ecosystems will be diverted, to the extent Possible, to avoid any adverse effects to the riparian area.

As maintenance and reconstruction needs permit, pasture fencing will be relocated To exclude the riparian ecosystem.

Stream alterations or removal of common variety minerals will be prohibited except as necessary for protection of roads and bridges, or if approved by a qualified stream specialist. Physical and biological effects of gravel removal on the riparian ecosystem should be considered when granting exceptions.

Management practices vary within the riparian area, depending on the proximity to water and the flooding frequency.

Frequently flooded soils and their plant communities will be managed:

To restore biological diversity and ecosystem integrity.
To protect adjacent Aquatic Ecosystems.
To provide for public safety.

The following activities are prohibited in the frequently flooded portion of the riparian ecosystem:

Fence building and maintenance.
Grazing allotments.
Haying and brush hogging.
Cultivation of agricultural crops.
Timber harvest.
Use of chemicals.
Construction of sanitation facilities.

Exceptions will be considered as needed to manage threatened and endangered species

and State species of concern, to treat noxious weeds, or to promote development of the PNC. Facilities will be limited to low cost or flood resistant developments such as boat ramps and trail and road crossings of aquatic ecosystems.

Occasionally flooded soils and their plant communities (Figure 1) will be managed:

- To reestablish natural riparian ecosystems.
- To achieve riparian wildlife habitat needs.
- To retain soil stability and filter strip benefits.
- To accommodate approved developments and recreation use.
- To provide for public safety.

The following activities and management practices apply within the occasionally flooded portion of the riparian ecosystem:

Timber production will be incidental to the achievement of the other riparian area objectives.

Grazing allotments and haying will be foreclosed at the earliest opportunity, unless in support of the development of PNC.

The rarely flooded portion of the flood plain, outside the riparian area, will be managed to compliment the objectives of the Management Prescription wherein it occurs.

(See the Mark Twain National Forest Riparian Handbook for more information).

Bottomland Hardwood Forests

Specialized habitat associated with bottomland hardwood forests will be managed as follows:

Except as modified by riparian zone objectives, management prescriptions for existing bottomland forest types will emphasize the perpetuation of hardwood cover types with a diversity of tree species and age classes.

Uneven-aged management utilizing group selection cutting in 0.25 - 2 acre-sized groups shall be used to create the following conditions:

Mixture of mature and overmature trees in groups within stands.

High forest canopy.

Small openings in canopy to provide patchiness and vertical height diversity.

Dead and dying trees or snags to provide potential nest sites and foraging stations.

The following species are recognized as using bottomland hardwood habitats:

Swamp Rabbit (State Rare Species)
 Swainson's Warbler (State Endangered Species)
 Kentucky Warbler
 Great Blue Heron
 Great Egret
 Black-crowned Night Heron (State Rare Species)
 Yellow-crowned Night Heron
 Acadian Flycatcher
 Hooded Warbler

Glades

Specialized habitat associated with glades will be managed as follows:

The minimum percentage of glades in National Forest System lands within the White River subsection of State Natural Divisions to be managed in open or semi-open conditions is:

Landtype Association	EST% Glade	Percent of LTA Area (NFSL)		Total
		Open Glades < 10% Woody	Semi-Open Glades 11-25% Woody	
Oak-Hickory Hills	15	3	2	5
Oak-Hickory Breaks	20	3	2	5
Oak-Pine Breaks	15	3	2	5
Cedar-Glade Breaks	40	5	5	10
Cedar Glade Hills	25	5	5	10

Management emphasis should be on glades larger than 10 acres.

The following species are recognized as using glade habitats.

Grasshopper Sparrow	Great Plains Rat Snake
Bachman's Sparrow (State Endangered Species)	Red Milk Snake
Texas Mouse	Northern Scarlet Snake
Greater Roadrunner	Ground Snake
Common Nighthawk	Flathead Snake
Eastern Collared Lizard	Western Worm Snake
Eastern Narrowmouth Toad	Western Pygmy Rattlesnake
Six-lined Racerunner	Texas Horned Lizard
Northern Lined Snake	Southern Coal Snake
Eastern Coachwhip Snake	Ornate Box Turtle

Shortleaf Pine Forest

Specialized habitats associated with shortleaf pine forests will be managed as follows:

*All active sharp-shinned and Cooper's hawk nests shall be protected wherever encountered on National Forest System lands by Forest Plan standards and guidelines on page IV-50, paragraph 2, subparagraphs 1, 2, 3.

When active nests do not exist, one candidate area per 5,000 acres on National Forest System lands will be identified for protection within the Oak-Pine LTA and in other LTA's with established pine plantations.

Candidate areas will meet the following criteria:

Stand Conditions

Type: Shortleaf Pine	Ave DBH: 6-12 (preferred 8.5) in.
Size: 15 acre minimum; no maximum	Overstory Crown Closure: >80%
Basal Area: 100-200 (preferred 160) sq ft.	

Proximity

- at least one mile apart,
- within ½ mile of water,
- and within ½ mile of a forest opening such as a woods road or animal habitats 12, 13, 15, 16 or 38.

Prohibit controllable disturbances in candidate areas while the area meets selection criteria.

Before initiating management practices within 1320 feet of a candidate area, the candidate area should be checked for nesting activities. The critical period is from April 1 thru September 30.

Selected candidate areas and all other pine types meeting candidate area criteria will have two potential nest trees per 5 acres left when doing any vegetative treatment.

Trees preferred for nesting are shortleaf pine with a whorl or platform of limbs just below the canopy.

Natural vegetative communities, including old growth open pine forest and old growth pine savannahs, will be reestablished on appropriate sites to further plant and animal diversity objectives and will provide, where appropriate, specialized habitat requirements for species native to such communities, including the red-cockaded woodpecker and others. These opportunities and their benefits are evaluated during IRM Step 2 analysis.

The standards and guidelines for management of all other indicator species associated with specialized shortleaf pine habitats appears to be adequate.*

The following species are recognized as using shortleaf pine forest habitats.

Cooper's Hawk (State Endangered Species)	Long-eared Owl
Red-cockaded Woodpecker (Federal Endangered Species)	Pine Warbler
Sharp-shinned Hawk (State Endangered Species)	Brown-headed Nuthatch

Fishless Ponds and Temporary Pools

Specialized habitats associated with fishless ponds and temporary pools will be managed as follows:

Distribution objectives on National Forest System lands for fishless ponds and their degree of structure development are:

Management Area	Maintain Fishless		Develop Structures*	
	Max	Min	Max	Min
3.4	4/1000 Ac	1/1000 Ac	1/1000 Ac	1/5000 Ac
4.1 & 3.2, & 3.3	1/1000 Ac	1/2000 Ac	1/2000 Ac	1/5000 Ac
3.1, 6.1, & 6.2	1/2000 Ac	1/4000 Ac	1/3000 Ac	1/10,000 Ac

* Habitat of small ponds may be improved by providing brush piles, logs, and rock along north banks.

Excessive clearing of trees and brush along pond banks will be avoided. Portions of cut vegetation except redcedar and pine should be allowed to fall into the water.

Management prescriptions for ponds will be developed during compartment analysis. Emphasis will be placed on the management and rehabilitation of existing ponds. Construction of new ponds would be limited to situations where minimum objectives cannot be met by existing facilities.

The following species are recognized as using fishless pond and temporary pool habitats:

Ringed Salamander (State Watch List)	Northern Spring Peeper
Spotted Salamander	Cope's Gray Treefrog
Marbled Salamander	Eastern Narrowmouth Toad
Central Newt	Southern Leopard Frog
American Toad	Wood Frog (State Rare Species)
Blanchard's Cricket Frog	

Management Indicator Species

Except as provided for by specialized habitats the following wildlife habitat associations (Landtype Association Group) are the geographic basis for the application of wildlife habitat standards and guidelines.

Oak-Pine Breaks	Oak-Pine Breaks (White River)
Oak-Pine Hills and Plains	Oak-Pine Mountains
Oak-Hickory Breaks, Hills & Plains	Oak-Hickory Hills (till)
Cedar Glades Breaks and Hills	Oak-Bluestem Plains

Management indicator species for the Oak-Pine Breaks, Oak-Pine Breaks (White River), Oak-Pine Hills and Plains and Oak-Pine Mountains are:

Pileated Woodpecker	Wood Thrush
Ovenbird	Ruffed Grouse
Turkey	Bobcat
White-tailed Deer	Indigo Bunting
Raccoon	

Management indicator species for the Oak-Hickory Breaks, Hills, and Plains; and Oak-Hickory Hills (till) are:

Pileated Woodpecker	Wood Thrush
Ovenbird	Ruffed Grouse
Turkey	Bobcat
White-tailed Deer	Indigo Bunting
Raccoon	Eastern Bluebird
Bobwhite Quail	Cottontail Rabbit
Orchard Oriole	

Management indicator species for the Cedar Glades Breaks and Hills are:

Pileated Woodpecker	Turkey
Bobcat	White-tailed Deer
Indigo Bunting	Bobwhite Quail
Cottontail Rabbit	Orchard Oriole

Management indicator species for the Oak-Bluestem Plains are:

Turkey	White-tailed Deer
Indigo Bunting	Raccoon
Eastern Bluebird	Bobwhite Quail
Cottontail Rabbit	Orchard Oriole

Management indicator species specific to aquatic habitats will be identified when an effective linkage is made between state aquatic species inventories and aquatic areas impacted by Forest Service management practices. Standards and guidelines for riparian specialized habitat will be implemented and monitored to ensure recognition of the needs of the overall aquatic community.

Management indicator species for a particular habitat may change as the knowledge of habitat and species relationships evolves.

Minimum Viable Populations

For the purpose of integrating wildlife habitat in forest land management, minimum viable populations are measured as:

Populations reasonably well distributed throughout the Forest at a level which can be maintained over large acreages.

Populations sustainable over long periods of time, able to endure the most adverse combinations of weather.

Populations capable of responding to improved habitat conditions in a reasonable time.

Populations sustainable entirely on habitat from National Forest System lands without contribution from adjoining private lands.

The following population estimates will be used to characterize minimum viable and estimated high populations levels of indicator species.

	Minimum Viable Populations						High
	Wildlife Habitat Association						Populations
	Oak Pine Breaks	Oak- Pine Hills, Plains	Oak- Pine Mtns.	Oak- Hickory Breaks, Hills, Plains	Cedar- Glade Breaks and Hills	Oak- Blue- stem Plains	Forest-wide
Pileated Woodpecker Pr./1000 Ac	3	2	3	2	3	NA	6
Wood Thrush Males/1000 Ac	10	10	10	10	NA	NA	35
Ovenbird Males/1000 Ac	25	20	25	25	NA	NA	100
Ruffed Grouse 1/ No./1000 Ac	10	10	10	10	NA	NA	100
Turkey No./1000 Ac	8	8	15	10	14	8	24
Bobcat No./4000 Ac	1.4	1.4	2	1.6	2	NA	4
White-tailed Deer No./1000 Ac	6	6	10	7	7	9	40
Indigo Bunting No./1000 Ac	80	80	90	80	96	90	150
Raccoon No./1000 Ac	6	5	9	8	NA	6	30
Bluebird Pr./1000 Ac	NA	NA	NA	30	NA	30	150
Orchard Oriole Males/1000 Ac	NA	NA	NA	2	2	4	30
Bobwhite Quail No./1000 Ac	NA	NA	NA	67	67	67	200
Cottontail Rabbit No./1000 Ac	NA	NA	NA	40	40	40	200

1/ Applies only to areas designated as potential and suitable for ruffed grouse.

The following habitat objectives will be used as indicative of viable populations by land type associations. Objectives are in terms of percent of National Forest System land.

Landtype Association: Oak-Pine Breaks	Percent of NFSL
Woodland habitat in the 0-9 year age class	4 percent
Woodland habitat in old growth condition:	5 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	30 percent
Woodland habitat in pole and sawtimber size classes with crown closure over 80%:	30 percent
20 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10 percent
Open and semi-open habitats:	1 percent
Permanent water sources per square mile:	1 source
Landtype Association: Oak-Pine Hills and Plains	Percent of NFSL
Woodland habitat in the 0-9 year age class:	4 percent
Woodland habitat in old growth condition:	5 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	25 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80%:	20 percent
20 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10 percent
Open and semi-open habitats:	1 percent
Permanent water sources per square mile:	1 source
Landtype Association: Oak-Pine Mountains	Percent of NFSL
Woodland habitat in the 0-9 year age class:	4 percent
Woodland habitat in old growth condition:	10 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80%:	25 percent
25 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	5 percent
Open and semi-open habitats:	3 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Hickory Breaks	Percent of NFSL
Woodland habitat in the 0-9 year age class:	3 percent
Woodland habitat in old growth condition:	10 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	35 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80%:	20 percent
25 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	5 percent
Open and semi-open habitats:	1 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Hickory Hills and Plains	Percent of NFSL
Woodland habitat in the 0-9 year age class:	4 percent
Woodland habitat in old growth condition:	5 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	35 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80%:	20 percent
20 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	5 percent
Open and semi-open habitats:	1 percent
Permanent water sources per square mile:	1 source

Landtype Association: Cedar-Glades Breaks and Hills	Percent of NFSL
Woodland habitat in the 0-9 year age class:	1 percent
Woodland habitat in old growth condition:	10 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	20 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80%:	10 percent
10 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitats:	7 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Bluestem Plains**Percent of NFSL**

Woodland habitat in the 0-9 year age class:	1 percent
Woodland habitat in old growth condition:	5 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	25 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80%:	N/A
20 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitats:	20 percent
Permanent water sources per square mile:	1 source

Woodland habitat cavity tree and snag objectives per acre (NFSL) for all wildlife association are:

Diameter 19 inches plus	0.5 cavity trees/acre 0.5 snags/acre
Diameter 11 to 18 inches	2.0 cavity trees/acres 2.0 snags/acre
Diameter 10 inches or less	1.0 cavity trees/dens 1.0 snags/acre

The selection of cavity trees and snags to meet average per acre objectives will consider existing occurrences as well as placement for overall long-term treatment area objectives.

Habitat objectives for wildlife food tree species and large openings are not specified for minimum viable populations.

Regeneration Criteria

Age class distribution control will be by the individual management area.

During the project identification process specific criteria unique to each management area will be developed for the identification of stands to be regenerated. Selection criteria will address:

Age class distribution objectives by major forest type.

Habitat interspersion objectives.

Opportunities to reach habitat objectives within each ecological landtype and natural community.

The size of individual regeneration cuts and their location relative to specific species needs (i.e., Ruffed Grouse).

Crown Closure Criteria

Crown closure criteria are determined for each management area relative to landtype association and characterized in terms of percent of National Forest System lands.

Old Growth Criteria

Old growth criteria are determined for each management area by landtype association and characterized in terms of percent of National Forest System land.

The selection of old growth stands will emphasize effective distribution over the management area, varied tree species composition, and varied vertical stand structure.

The opportunity to identify larger size and interconnected old growth zones will be evaluated and decisions documented during the management area ten-year program development.

Snag and Cavity Tree Criteria

Snag and cavity tree criteria are determined for each management area based on an average number per acre of National Forest System lands.

As practicable in meeting distribution objectives, snags and cavity trees will be located to complement subsequent stand management practices.

Large Openland Criteria

Large openland criteria are determined for each management area and characterized in terms of percent of National Forest System land.

In analyzing achievement of wildlife objectives for open and semi-open woodland habitats, utilize those portions of large openlands that complement dispersion objectives. The remaining portions of large openlands will be managed to meet multiple use objectives of the management area they occur in.

Large openlands managed for wildlife objectives will have tree crown closure of 30% or less.

The following seven types of large openland situations will be recognized for purposes of coordinating wildlife habitat:

Large Glades. Glades in the Cedar Glade Breaks and Hills LTA. These glades are considered large because cumulatively they comprise over 30% of this LTA.

Small Glades. Glades located in LTA's other than the Cedar-Glade Breaks and Hills. They are considered small because they comprise a small portion of their associated LTA. They often are "islands of openlands" in large expanses of forested landscapes. Therefore, management will focus on their uniqueness.

Cool-Season Grasses, Large Areas. Typically these are more than 40 acres of contiguous openland with few woody fence rows or draws. They are generally found on broad, rolling hills more than 1/8 mile wide or on bottomlands along stream courses. They are adjoined on three or more sides by other openlands, either private or National Forest system lands, thus reducing the amount of forest edge per unit area.

Cool-Season Grasses, Small Areas. These areas consist of 40 acres or less in size and no more than 1/4 mile wide. They can consist of up to 150 acres of such units as long as they are non-contiguous and the entire 150 acre area is forested on 50% of it's perimeter. Wooded draws, fence rows, patches of forest, and stream courses are examples that serve to break up the contiguous nature of large blocks of openlands.

Warm-Season Grasses, Large Areas. The physical characteristics of this openland situation (size, topography, etc.) are identical to those described for cool-season, large areas; however, the herbaceous vegetation is quite different. The herbaceous species are native to the prairie ecosystem and are considered to have more value to wildlife species than the introduced cool-season species.

Warm-Season Grasses, Small Areas. This openland situation is also identical physically (size, topography, etc.) to it's cool-season counterpart. It offers most of the wildlife habitat and management benefits provided by warm-season large acres and is similar vegetatively. The lack of woody cover is further mitigated by the small size, irregular boundaries, and close proximity to forested types.

Cool-Season and Warm-Season Grasses. This situation is found when there are fields of both warm and cool-season grasses and they are managed together. Each type is managed as a separate entity. Management guides are the same for the cool-season openlands and for the warm-season areas discussed above. The only habitat parameter that is unique to this openland situation is the ratio of warm-season to cool-season acres. Since warm-season grass species are considered more beneficial to wildlife populations, the greater the amount of warm-season acres, the greater the wildlife habitat value.

2700 Special Uses Management

Forest-wide Special Uses Standards and Guidelines do not apply to Management Prescription 5.1.

Special uses will be permitted if they comply with standards and guidelines for the management area, do not detract from National Forest objectives, do not result in environmental or resource degradation, do not foreclose opportunities for National Forest resource development, and where locations on non-National Forest System lands are not reasonably available.

Prescribed burning by permittees and other cooperators on National Forest System land must be authorized by an approved burning plan.

Utility Transmission Corridors

Each new or reconstructed facility (See FEIS Glossary) will be developed based on an environmental analysis. The environmental analysis documentation and decision documentation will comply with all applicable laws and regulations, and will be approved by the Forest Supervisor.

In areas with a Visual Quality Objective of Retention, all telephone lines, utility lines, and power transmission lines of 34 KV or less, will be buried whenever practical. If burial is not practical as determined by an environmental assessment which considered relocation alternatives, the Visual Quality Objective may be changed to Partial Retention.

Power transmission lines in excess of 34 KV will not be permitted in Retention areas.

In areas with a Visual Quality Objective of Partial Retention, Modification, or Maximum Modification, the burying of new or reconstructed telephone, utility and power transmission lines of 34 KV or less will be encouraged.

In planning and managing of any utility development, emphasis will be placed on minimizing adverse visual impacts. Where burial of facilities is not practical, rerouting or screening will be emphasized to avoid adverse impacts on visually sensitive areas.

Abandoned facilities will be removed. (See FEIS Glossary)

To the extent possible, place utility developments in road right-of-ways and transportation corridors.

Multi-facility corridor width will be one quarter mile.

Utility company personnel will be provided access on Forest Service System roads closed to public use as appropriate to meet utility maintenance needs. Special use permits will be issued for roads needed for utility maintenance that would otherwise be dropped from the Forest Service permanent road network.

Apply standards for facility design including right-of-way considerations, found in REA Bulletin 62-1, Revised August 1980 "Design Manual for High Voltage Transmission Lines".

Vegetation on all utility line ROWs 40 feet or more in width shall be managed selectively. Selection may be by individual stems or predetermined areas.

Vegetation on utility line ROWs less than 40 feet wide may be managed selectively.

Ranger Districts shall develop utility line ROW vegetative management plans prior to the permittee's next planned vegetative treatment. Where a ROW crosses more than one District, the involved Districts shall develop one plan for the entire ROW length.

Utility line ROW management plans shall be based on inventories of the ROW and surrounding lands. Inventories shall be multi-resource and shall be of

sufficient detail for the interdisciplinary team to determine desirable management techniques, their placement and timing, prepare the management plan, and monitor the results.

The ROW permittee shall be responsible for all maintenance. Collection agreements may be used when permittees lack the technical capability to execute some phases of maintenance. Collection agreements shall be limited to one maintenance cycle.

Resource objectives beyond the permittee's needs for cost efficient ROW maintenance and permit compliance may be financed by Forest Service project funds.

Vegetative management plans for utility ROWs shall emphasize open or semi-open habitats, except where this emphasis is irreconcilable with the permittee's utility needs.

Acceptable mechanical techniques for vegetative maintenance are the use of hand tools, mowing, disking, and chopping.

Acceptable chemical techniques for vegetative maintenance are tree injection, basal spray, foliar spray, stump spray, and liquid or pelletized soil application. Application of chemicals from aircrafts will not be permitted.

The encouragement of allelopathic plant species is an acceptable biological technique for vegetative maintenance.

Powerline ROW maintenance practices shall maximize vegetative diversity by:

- Seeking a dispersed pattern of 1/3 woody/shrub plant communities and 2/3 herbaceous/grass communities.

- Utilizing existing vegetative diversity to the maximum before investing in diversity development.

- Using prescribed fire.

- Seeding legumes on disked or burned areas where appropriate.

- Breaking up grass corridors with woody zones.

- Using grassland for range forage but only for ROWs greater than 200 feet wide or where grasslands are adjacent to narrower ROWs.

- Reseeding plowed fire lines with herbaceous species.

- Leaving felled woody vegetation in place.

Pipeline ROW vegetation shall be maintained by:

- Limiting vegetation adjacent to the line to grass and herbaceous species to facilitate the location of leaks by aerial survey,

- Encouraging low shrubs along the ROW edges.

Prescribed fire may be used but not while pipelines are transporting flammable substances.

Suggested (X) management techniques for maintenance of existing vegetation on various landforms and habitat types are as follows:

Land Form	Habitat Type (WMIS)	Techniques <u>1/</u>							
		A	B	C	D	E	F	G	H
Broad Ridge	7 <u>2/</u>	X			X		X		
	8 <u>2/</u>	X		X			X		
	9 <u>2/</u>	X					X		
	12 <u>2/</u>	X	X	X	X	X			
	13 <u>2/</u>	X	X			X		X	
	17-19	X	X		X	X			
	38	X		X		X			X
North Slope and Narrow Ridge	7	X			X		X		
	9	X					X		
	12	X	X	X	X	X		X	X
	13 <u>2/</u>	X	X			X		X	
	17-19	X	X		X	X			X
	38	X		X		X			X
South Slope and Narrow Ridge	7	X			X		X		
	8 <u>2/</u>	X		X			X		
	9 <u>2/</u>	X					X		
	12 <u>2/</u>	X	X	X	X	X		X	X
	13	X	X			X			X
	17-19	X	X		X	X			X
	38	X		X		X			X
Wide Drain	7	X			X		X		
	8	X		X			X		
	9	X					X		
	12	X	X	X	X	X	X	X	
	13	X	X			X	X		
	14	X					X		
	15-16	X	X		X		X	X	
	17-35	X					X		
Narrow Drain	12	X	X			X	X	X	
	13	X	X			X	X		
	15	X				X			X
	16	X				X	X		X
	17-35 <u>2/</u>	X					X		

1/ The letters representing techniques are defined as:

- A. Biological techniques.
- B. Selective mowing and herbicide application on slopes up to 45%.
- C. Prescribed fire.
- D. Contour disking on slopes up to 20%.

- E. Selective herbicide application.
- F. No treatment.
- G. Selective mowing on slopes up to 45%.
- H. Selective hand cutting and herbicide application particularly on slopes more than 45%.

2/ Preferred habitat type.

Cemetery Management

Cemeteries will be protected from resource management activities.

Regular program funds will not normally be used to maintain abandoned cemeteries on National Forest System lands unless the site is of some recognized historical significance.

Special employment programs or volunteers may be used to maintain abandoned cemeteries on National Forest System lands.

Special use permits may be issued to individuals, groups, organizations, or local authorities with interest in maintaining established cemeteries on National Forest System lands.

Where vehicle access is not adequate on the permanent Forest Service road network, access may be developed under the terms of a special use permit.

Transportation System Uses

The Transportation System Maps will be used to determine the type of special use road permit or easement to be issued.

Criteria for issuing a special use road permit or easement on non-system roads are:

The permit or easement will be issued for the construction, reconstruction, or maintenance of roads not included as a part of the Forest Transportation System. The permittee is responsible for road maintenance and the roads may be closed to public use.

Design standards must meet the permittee's minimum needs.

Criteria for issuing a special use road permit or easement on system roads are:

The permit or easement will be issued only for construction or reconstruction of National Forest development roads.

Construction or reconstruction must be in accordance with Forest Service design standards.

If a permit is issued the permit will be terminated when construction has been completed and approved by the Forest Engineer or his designee.

Roads are open to public use on the portions on National Forest System lands.

Maintenance of system roads for access to private property will be performed by the Forest Service unless the maintenance schedule will not meet the minimum needs of the private user, in which case:

County maintenance by agreement should be negotiated by the user.

Should these negotiations fail a temporary permit may be issued for maintenance in cases requiring infrequent maintenance.

If frequent maintenance is required issue an easement or permit to provide for maintenance by the landowner. Cancel the permit when Forest Service maintenance meets user's needs, the road no longer requires frequent maintenance, or the County assumes maintenance responsibility.

The use of pesticides will not be authorized for maintenance of special use roads.

Competitive and Organized Events

Competitive events permitted on National Forest lands will be skilled events.

Motor vehicle events with speed as the determining factor will not be permitted. Competitive events will not be permitted unless sanctioned by a State, regional, or national association.

Competitive events will not be permitted in areas of the Forest or at times of the year that will conflict with recreation and other resource uses.

A competitive event must comply with all applicable Forest Plan direction.

Outfitter and Guide Uses

Special Use Application will describe the services to be performed, the number of service days, lands to be occupied, modes of transportation, season of use, scheduling, and so forth. Application procedures are established in 36 CFR 251.54.

Outfitter and guide permits may be issued when Forest Plan objectives are not compromised.

Agriculture Uses

There are alternative methods for approving the removal of vegetative growth from fields. Selection of the appropriate alternative depends upon the management objective.

The alternatives are:

Service Contract: FSH 6309.31, Forest Service Procurement, Regulation 4G-2.2.

Livestock Use Permit: FSM 2233.19.

Miscellaneous Forest Products Sale: FSM 2467.25.

The first three alternatives can only be implemented after a wildlife prescription has been developed and approved by the District Ranger. The prescription will, as a minimum, prescribe vegetative objective, vegetative manipulation, fertilization requirements, and wildlife habitat objectives.

2800 Minerals and Geology

Mineral Exploration

All lands will be available for exploration that does not disturb the land surface.

Surface-disturbing exploration (including core drilling) will be permitted where it is compatible with the management area objectives. The reason for closing an area to land-disturbing exploration must be supportable and documented.

Surface-disturbing exploration (including core drilling) will be prohibited on administrative sites, developed recreation sites, endangered and threatened species habitat, National Trails System, over known caves, and in Wilderness.

Temporary roads may be used to supplement the permanent road system in providing access for mineral activities, with the emphasis on minimizing long-term visual impact and meeting overall management area objectives. Temporary roads will be developed and closed as directed under Forest-wide Standards and Guidelines 7700.

Use of metal detectors to search for minerals will only be allowed under a Special use permit.

Exploration will be based on a Forest Service approved operating plan.

Apply additional standards to the U.S. Department of the Interior (USDI), Bureau of Land Management (BLM) permit as needed to meet the management area objectives.

Drilling is prohibited within buffer zones associated with perennial waters as defined under riparian areas (2600), springs, and wetlands. On slopes greater than 12%, it is prohibited within 50 feet plus four times the percent of slope. (Reference Forest-wide standards and guidelines 2400 - Filter Strips)

Mineral exploration within "river" zones as defined under Forest-wide Standards and Guidelines 2300 is further restricted to exclude areas readily apparent to users of roads, developed sites, and overwater travel.

Surface excavation at drillsites will comply with visual quality objectives for the specific site. Upon completion of operations, the site will be returned to as close to the original condition as practical.

Drill site rehabilitation shall consist of:

Reshaping the landing prior to revegetation.

Ditching or waterbarring to provide proper drainage into a filter strip.

Revegetation of all exposed mineral soil.

Drill holes will be filled at the ground surface. This includes covering the concrete cap.

Any scrap material or litter will be removed from the site.

Spot surfacing such as planking, mats, and gravel will be allowed. Surfacing other than gravel will be removed upon completion of activities.

Residue treatment will be sufficient to meet the visual quality objectives for a specific site as defined by Forest-wide and individual Management Prescription Standards and Guidelines (2300).

Mineral Development

USDA consent to both lease requests and subsequent operating plans for mineral extraction will be determined individually. This decision is based on the relative value of the surface and subsurface resources and on compliance with the standards and guidelines as determined by an environmental analysis specific to each action.

Land management decisions must not preclude the ability of private mineral owners to make reasonable use of the surface, as defined by deed and public law.

As a minimum, settling ponds must meet the following requirements:

The proponent must establish to the satisfaction of the Missouri Department of Natural Resources and the Forest Service that water quality standards will be met.

Settling pond design and construction must comply with dam safety requirements of the Missouri Department of Natural Resources and the Forest Service.

Settling pond proposals must comply with requirements of Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Wetland Protection).

The Forest Service may specify additional requirements to protect public health, safety, and the environment.

Common Variety Minerals

Due to limited known reserves on National Forest System lands, the utilization of common variety minerals will be limited to the needs of the Forest Service and other public agencies when the proposed use benefits National Forest management. Private personal uses are exceptions when quantities are minor and removal is compatible with management area objectives.

Common variety minerals will not be removed from portions of streamcourses containing flowing water. If necessary, temporary dikes may be used to exclude flowing water from gravel removal sites. Dikes will be removed upon completion of graveling operations.

Removal of common variety minerals from stream channels or within 100 feet thereof will be in compliance with the objectives for riparian zone specialized habitat management.

Common variety minerals will not be removed from developed recreation sites, impoundment sites, waste disposal sites or other developed sites unless done for site maintenance objectives.

3400 Forest Pest Management

Integrated Pest Management

Use integrated pest management methods to minimize or prevent the development of pest problems. Where pest problems are unavoidable, select the solution that provides the most beneficial method, based on objectives, effectiveness, safety, environmental protection, and cost.

Aerial application control methods will only be permitted as a last resort.

4000 Research

At Potosi continue to cooperate on research project FS-NC-1109-76-01 entitled "Effects of Time of Overstory Removal on Oaks Planted Under Mature Stands Thinned to "B" Level Stocking" until completed in 1996.

At Houston, continue to cooperate on research project FS-NC-1109-82-01 entitled "Effects of Nursery Undercutting and Shading on Subsequent Growth of Red Oak" until completed in 1987.

At Houston, continue to cooperate on the research project entitled "The 1978 National Mycorrhizae with Emphasis on Northeastern Area Nurseries" until completed in 1989.

At Rolla, continue to cooperate on research project NC-1402, CG-381 entitled "Black Walnut Seed Source Study" until completed in 1987.

At Fredericktown, Rolla and Salem, continue to cooperate on research project OH-466, Predicting Reproduction Development Following Clearcutting. This study ends in 1995.

At Salem, continue to cooperate on research project OH-360 entitled "Stand Density Studies on Oak-Hickory, Effect of Controlling Understory Hardwoods."

Permit natural resource research within the objectives of the management area.

Research study plans may depart from the standards and guidelines of a management area with mitigation of adverse affects.

Current and future research study areas will be clearly identified in stand data bases.

Compartment prescriptions and project plans that include research sites will be coordinated with the research study prior to final approval.

Study area boundaries will be clearly marked for the duration of the study, meeting any visual management objectives of the site.

Research natural area status will be evaluated for nine areas listed under Management Prescription 8.1, plus other candidate areas as they may be identified.

5100 Fire Management

The fire management policy on National Forest System lands is to provide well-planned and executed fire protection and fire use programs that are cost efficient and responsive to management area objectives.

Each wildfire requires an appropriate suppression action. The suppression action may range from confinement to control. In no case are wildfires simply left to burn.

Wildfire prevention, detection, and suppression, as well as fuels management will be planned based on an analysis of probable fire location, expected fire intensities, potential net resource value change, and risk to health and safety, and will be addressed in the development of management area action plans.

Agreements for fire detection and suppression on National Forest System lands by cooperating agencies must define suppression action that will be compatible with management area objectives and fire suppression action plans.

Banning of open fires on National Forest System land will be coordinated with a Governor's Executive Order.

Public health and safety and legal liability will be the primary determinants for fire protection priority.

Protection of adjacent private lands from fire originating on National Forest System lands will receive high priority.

Fires originating on private lands inside the Forest's fire protection boundary as defined under agreement with the Missouri Department of Conservation will receive the same suppression strategies as National Forest System land unless suppression measures are specifically qualified by the protection agreement.

The level of fire prevention and suppression will be determined by the value-at-risk within each management area. On a scale of 1 (high) to (5) low, the value-at-risk is determined by the following criteria. All developed recreation and administrative sites are characterized as "2".

1. (High) Protection of unique, exceptional, or irreplaceable value.
2. Protect high resource and facility investment.
4. Protect basic resources and long-term investment.

4. Minimum emphasis sufficient to protect resources and private property.
5. Minimum emphasis sufficient to protect private property.

The following considerations will be used in assessing the impact of fire. Dates will vary somewhat between locations on the Forest. These considerations should be used as a general guide only. Effects can be highly variable from fire to fire and even within a single fire. Adequately stocked stands can sustain more intense fires than overstocked stands of poor vigor.

April 10 to May 30: Heavy kill and damage can occur to both hardwoods and pine during the spring growing period. Most oak growth occurs between May 1 and June 1. Oak and small shortleaf pines will normally resprout. Warm-season grasses are stimulated by burning this time of year.

June 1 to September 15: During this period of the year maximum mortality will occur on tree species. Because of low nutrient reserves there will be less sprouting. Intense summer burns can reduce the vigor of oak trees. The red oak group in Missouri is much more susceptible to fire damage than the white oak group.

September 16 to November 30: Tree kill and damage will normally be light except under very high or extreme burning conditions. Oak and small shortleaf pines will normally resprout and oaks generally are favored over other hardwoods.

December 1 to April 9: Tree kill and damage will normally be light except under very high and extreme burning conditions. Fires in native warm-season grasses will stimulate regrowth in spring.

Indices received from the National Fire Danger Rating Systems' AFFIRMS program will be used as a guide. This forecasted Burning Index (BI) will be used for manning purposes.

The Forest dispatcher and/or unit dispatcher will coordinate activities with adjoining Missouri Department of Conservation Districts, rural fire departments and other agencies within District boundaries.

Each District will maintain a specific Action Preparedness Guide. Where suppression units have been designated, the individual guides will be combined by the central dispatcher into one guide for the unit.

Fuel Models "E" leaf-off and "R" leaf-on from the 1978 National Fire Danger Rating System will be used for wildfire planning and manning guide purposes in oak-hickory, hardwood-conifer and conifer types. Fuel Model "L" will be used in the grass type glade areas of SW Missouri.

Initial attack time requirements where fire intensity level (FIL) is 3 (very high) or above during high fire damage periods is 1 hour. Other time requirements are established to meet management area objectives. The Fire Load Index (FLI) will be the basis for preplanned suppression responses and initial attack times and can be found in the Fire Management Action Guide.

Initial attack personnel will determine, on site, to either contain or control the fire when it is not an "escaped fire", and the fire intensity level (FIL) is 2 or below. District Rangers will designate each individual qualified to make such determinations. If no initial attack personnel are qualified then Rangers must determine suppression action.

Action to contain or control wildfire may include construction of fire lines, allowing fire to burn to a natural or manmade fuelbreak, burning out from either a natural or constructed fuelbreak, or a combination of above actions.

Any employee dispatched to take suppression action on a fire must meet national interagency fire qualification standards set forth in the National Wildfire Coordinating Group Wildland Fire Qualification Guide as supplemented by the Forest Service.

Personal protective clothing and equipment will be supplied and issued to fire fighting personnel in accordance with the Health and Safety Codes.

Prescribed fire will be used to meet management direction as appropriate to ecosystems involved and project objectives.

A written prescribed fire burning plan will be prepared by qualified individuals for each proposed prescribed burn. The plan will list criteria under which the specific burn shall be conducted. The plan shall be signed by an authorized line officer. Special consideration will be given to coordinating with other burns taking place at the same time.

*The following shall be considered smoke sensitive areas, and burn plans will be written to minimize smoke to such areas and caves:

All occupied gray and Indiana bat caves for prescribed fires conducted from November to April.

All areas of influence (as previously defined) for Indiana bat caves, any female Indiana bat capture site, and any occupied maternity colony site for prescribed fires conducted from May to October.

All occupied bald eagle communal night roosts, daytime concentration sites, or breeding sites.

Protect potential Indiana bat maternity colony sites (snags \geq 16" dbh) during prescribed burns conducted from May and October.*

Ordinarily fuel reduction treatments will not be undertaken unless the project is shown to be cost effective through an economic analysis, and documentation. (Not applicable to Management Prescription 5.1)

5300 Law Enforcement

Law enforcement response will correspond with frequency, severity and type of violation committed.

The Forest will support the Drug Enforcement Administration (DEA) in their effort to irradiate marijuana.

Illegal dumping of waste material will be promptly investigated and prosecuted.

Law enforcement will be based on a combination of proactive work, referrals from supporting law enforcement agencies, random observations, and reports by District personnel and citizens.

Law enforcement will be conducted in both a scheduled and unscheduled manner at problem areas whichever best suits the situation.

Law enforcement will be conducted in an obvious manner during heavy use periods commensurate with the potential for user or resource conflict.

Cooperative agreements will be the preferred approach for law enforcement when State laws adequately address the enforcement problems.

Cooperative agreements with the responsible county and State officials will be the preferred approach for search and rescue.

Adjust cooperative law enforcement agreements in accordance with tri-year evaluations of law enforcement needs and quality of service available.

Each administrative unit will develop and implement a security plan which has the recommendation of the Forest Law Enforcement Officer that is commensurate with risk and value of potential loss.

Each administrative unit will develop and implement an action guide to specifically direct the law enforcement efforts.

5400 Landownership

Surface Ownership

Land Adjustment

Consolidate National Forest System lands through purchase and exchanges, with emphasis on those areas where present National Forest lands constitute an appreciable proportion of the area and where additional land most valuable for National Forest purposes is available. Exchange isolated tracts, detached parcels, or projecting narrow strips of National Forest lands, that do not have special public values.

Land purchase or exchange must satisfy one or more of the following: (1) accomplish objectives of public law or regulation; (2) meet demand for National Forest System resources; (3) result in more efficient landownership patterns; or (4) result in lower resource management costs.

When funds are available, land adjustment and property boundary survey opportunities which meet objectives will not be foregone because average annual or decade accomplishment projections would be exceeded.

Acquire fee title to lands whenever possible. If fee title purchase is not possible, purchase partial interests when it serves long-term multiple use objectives.

Avoid encumbering National Forest System land available for exchange with uses that reduce exchange opportunities.

Acquisitions will generally be on a willing seller basis. Exceptions may be necessary to (1) clear title on offered tracts; (2) acquire critical rights-of-way; (3) meet legislative requirements; (4) acquire land or interests in land essential to manage and protect important public resources. Any proposal for condemnation of fee title lands in the last two categories will require public involvement to determine the importance of National Forest control over the lands in question.

Purchase lands adjoining established developments as needed to protect and enhance the development.

River access sites will be identified and may be acquired.

During the fifth-year (1990) Plan review, the impact of land adjustment program accomplishment on management area acreage allocation will be evaluated. If management area acreage adjustment significantly reduces the Forest's capacity to achieve Plan outputs, management area boundary changes may be made.

Lands acquired under the authority of the Weeks Act and the land for timber exchange program will be prioritized as follows:

1. Adjacent to other National Forest land.
2. Eliminates property lines and corners.
3. Eliminates needed road rights-of-way.
4. Resolves trespass.
5. Eliminates special use.
6. Unimproved property or improvement value is less than 10% of the total appraised value.
7. Relocation costs are less than 10% of the total appraised value.
8. Has no reservations or minimum reservations.

Lands and interests in lands acquired under the Land and Water Conservation Fund Act will be prioritized as follows:

1. Located within a Congressionally designated area.
2. Located within management areas having high priority for river recreation acquisition.
3. Tracts primarily valuable for outdoor recreation purposes and to conserve fish, wildlife, and plants, including habitat for threatened and endangered species.

To achieve more efficient landownership and lower resource management costs, isolated Federal tracts located in areas where private land use precludes future consolidation will be considered high priority for exchange.

Exchanges or purchase programs will generally be confined to tracts within areas of predominately National Forest System lands.

To be included in the land for land exchange program, the proposal must meet the following criteria:

Recommended in writing by the District Ranger specifying advantages, disadvantages, and justification.

Authorized by an exchange act:

General Exchange Act

Weeks Law Exchange Act

Bankhead-Jones Act

Special Exchange Acts

Proponent should be willing to pay costs for title work, publishing exchange notice in local newspaper, any necessary surveys of the non-federal tract and must be willing to provide additional land or cash to equalize the exchange.

Proposals meeting the above "must" criteria will be ranked according to the following:

Federal Land

Isolated tracts located in areas where consolidation is doubtful as shown on the land adjustment map.

Eliminates trespass.

Not within a special management area.

Eliminates needed road right-of-way.

Eliminates special use permits.

Eliminates property lines and corners.

Non-Federal Land

Inside National Forest boundary and adjacent to National Forest land.

Resolves trespass.

Is a critical tract for management of special areas.

Eliminates needed road rights-of-way.

Eliminates property lines and corners.

Is unimproved and unencumbered.

Has minimal title problems.

Has no reservations or minimum reservations.

Eliminates special use permits.

On federal lands having exchange potential, investments will be held to the lowest level that meets resource protection needs and responds to unavoidable management requirements. Utilize existing and temporary access to the extent possible. Limit new road development to that needed for other ownerships or to meet objectives of associated lands being retained. Invest in resource management only to the degree it is profitable on the short-term.

Access

Acquire right-of-ways to ensure protection and multiple use management of resources in accordance with applicable laws and regulations.

Acquire right-of-ways prior to the year related projects are planned.

Acquire temporary licenses only where there is an immediate need for temporary access or where the foreseeable need does not justify the expenditure to provide permanent public access. Normally temporary licenses will be limited to a five year period.

Property Lines

Property boundary lines will be located and marked to standard. Management practices, signing, or paint lines near or adjacent to an unmarked property boundary will be applied in a manner that does not create a false or misleading property line.

Priorities for property boundary location are:

1. Trespass situations requiring immediate resolution.
2. Boundaries that are expected to be long term or permanent location relative to acquisition or exchange of adjoining tracts.
3. Boundaries associated with facility development or sensitive project sites.
4. Boundaries associated with management areas in which high levels of project activity involving substantial physical impacts are planned.
5. Boundaries associated with management areas in which the overall program is planned at a low to moderate level or involves projects with less potential for physical impact.
6. Occupancy trespass resolution other than covered above.

Each occupancy encroachment case will be handled as promptly as time and funds permit to protect the interest of the United States and to grant appropriate administrative relief for valid title claims.

When a dispute evolves over the location of the property line or the ownership of the property, process the case under the appropriate procedure, i.e., conflict of survey, color of title, adverse possession.

When there is mutual agreement regarding the property line and ownership but an encroachment is evident pursue one of the following:

If no improvements are present have the property vacated.

If minor improvements are present, and it serves the public interest, have the property vacated.

If disposal of tracts with minor improvements best serves the public interest evaluate them for eligibility to sell or interchange under the Small Tracts Act.

If significant improvements are present on a tract evaluate it for eligibility to sell or interchange under the Small Tracts Act.

Subsurface Ownership

Consider subordination or acquisition of subsurface rights when all of the following are met:

Conflicts between surface values and mineral activities cannot be mutually resolved.

The public benefits from the surface values exceed the cost of acquiring subsurface rights.

The cost is consistent with budget priorities.

Subsurface rights will be reserved in land exchanges only when known mineral deposits occur in the vicinity.

Acquire subsurface rights in all fee purchases and exchanges if possible. Important acquisitions for surface objectives will not be foregone if subsurface rights are not offered for sale.

When acquiring property with subsurface reservations minimize the time period and the commodities reserved.

7100 Engineering Operations

Road Signing

Signing on all State, County, and National Forest roads will follow the guidelines established in Forest Service Handbook and appropriate cooperative agreements.

7400 Public Health and Pollution Control Activities

Water Supply

Drinking water may be provided except in Management Prescriptions 5.1 and 9.1.

All Forest public water systems will be inspected on a regular basis during the use period under procedures required by the State of Missouri. Any facility that is unable to meet these requirements will be removed from service until corrections are made.

Recreation Water

Water samples from the developed swimming sites at Council Bluff and Loggers Lake will be taken once prior to the swimming season and at least once per week during the swimming season. If public health hazard is determined, swimming will be prohibited until the hazard is corrected.

Waste Water

Sewage treatment facilities will be designed and operated to meet State water quality regulations. Facilities not meeting standards will be corrected as soon as possible.

Solid Waste

Refuse generated or deposited on National Forest System lands should be disposed of through community or area wide systems that meet Federal regulations.

Use of National Forest System land for landfill disposal sites will be considered only as a part of an area wide system and then only when private lands are not available.

7500 Water Storage and Transmission

All water storage and transmission structures, government owned, or permitted by the Forest Service shall be operated and maintained in accordance with the Federal Guidelines for Dam Safety and other applicable regulations and standards.

All dams except those determined to be low-value non-hazardous will be inspected by qualified individuals on a scheduled basis.

Low-value non-hazardous dams, i.e., stock ponds, will not be included on the dams inventory and the benefiting resource will be responsible for their periodic inspection.

7700 Transportation System

Forest-wide Transportation System Standards do not apply to Management Prescription 5.1.

The Forest Plan maps show the permanent Forest Service system road network. Any transportation analysis that modifies this transportation development plan must be approved by the Forest Supervisor with appropriate public involvement.

Temporary Roads

Temporary roads may be used to supplement the permanent road system as necessary to provide access for resource development within management area direction.

The development of any temporary access under permits or contracts will require joint on-the-ground layout by the permittee or contractor and the Forest Service representative before construction. Locations must have Forest Service approval.

Centerline grade shall not be less than 2% and not more than 8% for sustained grades (pitch grades not to exceed 150 feet slope distance may be up to 15%) on temporary roads and skid roads. The centerline grade on skid trails shall not be more than 45% for up to 150 feet slope distance.

Filter strip standards between temporary road and perennial or intermittent streams shall be met. Crossings shall be at right angles and surfaced if necessary.

Positive drainage shall be built into roads during initial construction and shall be maintained.

Temporary roads, skid roads, and skid trails shall avoid springs and seeps.

Open-top culverts may be used to drain intermittent springs and seeps crossing temporary roads.

Skid trails should not drain directly into roads, areas of disturbed mineral soil, sinks, springs or watercourses.

Erosion control work shall be kept current immediately preceding expected seasonal periods of precipitation or runoff. When weather permits operations after normal operating season, the erosion control work on any additional disturbed areas shall be up-to-date as practical.

Any temporary access will be closed when no longer needed for the purpose for which it was developed. Temporary road, skid road, and skid trail closures shall consist of:

- Removing all culverts, bridge planking, and stringers at stream crossings and all fill material from the stream channel.

- Stabilizing by revegetation all fill, loose dirt, and mineral soil adjacent to stream crossings.

- Eliminating ditches, removing ruts and berms, and blocking vehicular traffic.

- Smoothing, outsloping to 3 percent, and reshaping broad base dips on temporary roads.

- Revegetating mineral soil exposed in road prism.

- Installing water bars in all temporary roads, skid roads, and skid trails where strips of mineral soil are exposed.

Permanent Roads

Construction and reconstruction standards for roads will be the minimum necessary to meet the management area objectives.

Generally all arterial and collector roads are in place.

Generally local roads shall be designed to conform to natural contours of the land and meet the standards of a 10 foot running surface with broad based dips and outslopes utilized for drainage in lieu of culverts. Higher local road standards must be justified on a case-by-case basis.

Unimproved roads (woods roads) may be used to accommodate motorized recreation use and for transportation of forest products. In general these routes are unimproved and are maintained only to prevent resource damage. Use may be only in fair weather or with four-wheel drive vehicles. Unimproved roads are local roads and are intended to remain in an unimproved condition. Unimproved roads authorized for use are identified on the system road inventory and Forest Plan transportation maps.

Access across National Forest System lands to private lands may be authorized under special use permit if not adequately provided by the permanent road system. See Forest-wide Standards and Guidelines 2700.

The method of access restriction on intermittent service roads will be identified during the planning phase for the road.

Forest Development Roads will be managed to reduce user conflicts and enhance recreation in specific areas, for example walk-in turkey areas.

Only the line officer designating the closure of Forest roads (or trails) can amend the closure or give permission for public use of the road (or trail) that is contrary to provisions of the order.

The Federal Highway Administration, in consultation with the Forest Service, the Missouri Highway and Transportation Commission, and cooperators where appropriate, will designate Forest Highways from the Forest roads.

Permanent roads will be maintained to at least a level necessary to protect road investment and the adjacent resources.

Maintenance level for Forest Development Roads shall be determined by function classification, traffic volume, management area guidelines, associated resource outputs, and available funding.

Roads will be maintained to a level necessary for Forest generated traffic. When public traffic is generated by non-forest activities, the appropriate county will be contacted to assume their share of maintenance responsibilities.

Roads will be maintained to at least Maintenance Level III if passenger car travel is intended.

The maintenance level for unimproved roads would normally be greater than level 1 and less than full level 2 standards.

All roads under Forest Service jurisdiction not shown on the Forest Transportation Plan, or its subsequent revisions, will be closed unless under special use permit.

Normally all non-system roads in a particular area will be closed when project-related temporary roads are closed. Exceptions will be (1) immediate closure of non-system roads where use is causing unacceptable resource damage or user conflict, and (2) the systematic closure of roads as funds permit in areas that will not be impacted by project work during the Plan period.

Revegetation of closed facilities will be accomplished within one year after termination of a contract, lease, or permit for the project.

Corridors

Locations for all Forest Service roads to be upgraded, constructed or reconstructed as part of the approved road network (including Forest Highways that meet this definition) are shown on the Forest Plan Transportation Map. Final road network mileage projected as of September 1985, is as follows:

District	Existing Roads to Standard	Existing Roads to be Upgraded to Standard	New Road Construction on Undisturbed Location	Unimproved Woods Roads to be Retained	Total Permanent Road System
-----Miles-----					
Ava	39	16	5	183	243
Cassville	18	47	-	114	179
Cedar Creek	3	-	-	2	5
Doniphan	140	32	0	56	228
Fredericktown	67	2	6	28	103
Houston	57	13	4	46	120
Poplar Bluff	191	73	9	76	349
Potosi	170	36	2	66	274
Rolla	63	25	5	66	159
Salem	222	51	5	64	342
Van Buren	95	28	-	49	172
Willow Springs	56	72	5	33	166
Winona	138	31	5	94	268
Total	1,259	426	46	879	2,608



MANAGEMENT PRESCRIPTIONS

The Forest Management Team identified twelve broad management prescriptions. These management prescriptions achieve a desired future forest condition with resulting outputs of goods, services, uses and environmental enhancements. They are specifically designed to respond to ten management problems analyzed by the Forest Plan. They also link to six of the nine Regional management goals contained in the Regional Guide. The first number of the Forest management prescription identifier relates to the Regional Goal number, e.g. 3.1 relates to Regional Management Goal 3. The second digit identifies a specific Forest variation of a Regional Goal. Regional goals 1, 2 and 7 are not applicable to the Mark Twain National Forest.

Management prescription assignments in terms of thousands of acres and percent of Forest are as follows. They are based on mapped acreages for each management area. Forest Plan maps show the location of the management areas. Acreage calculations differ from those assigned by the analytical solution for three reasons: 1) the adaptation of analytical acres to realistic ground-based boundaries require some latitude; 2) the mapped acreage is based on current ownership while the analytical acres are from 1980 ownership; and 3) the acreage assigned to Management Area 9.1 - minimum management, is not mapped. Management Prescription 9.1 is defined by standards and guidelines. It occurs in relatively small scattered sites throughout numerous management areas. Mapping it on Forest Plan scale maps would be impractical. The impact of acreage shifts is minimal on the capability to meet Forest Plan objectives.

Table 4-6

MANAGEMENT PRESCRIPTION ASSIGNMENT OF FOREST PLAN

M.P.	M.Acres	%	M.P.	M.Acres	%
3.4	*467.6	31.4*	3.1	13.5	0.9
4.1	407.9	27.4	3.3	13.0	0.9
6.2	257.0	17.3	6.3	12.3	0.8
6.1	67.3	4.5	*8.1	16.9	1.1*
3.2	64.1	4.3	4.2	0	0
5.1	63.2	4.3	9.1	(24.9)•	(1.7)•
3.5	77.2	5.2	7.1	3.0	0.2
			Total	1487.8	100.0

- Amounts included in other Management Area calculations

MANAGEMENT PRESCRIPTION 3.1

This prescription emphasizes management of natural vegetative communities and their successional stages to produce moderate resource outputs from a managed forest environment.

Purposes of this Prescription:

- (1) To emphasize management of natural vegetation communities and their successional stages.
- (2) To provide wildlife habitat diversity characteristic of managed natural communities.
- (3) To provide dispersed recreation opportunities featuring a roaded natural recreation environment.
- (4) To provide a sustained yield of hardwood and softwood sawtimber and other timber products.
- (5) To satisfy other resource demands such as forage and minerals through moderate to intensive management.
- (6) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition:

Management areas will generally be 2,500 acres or larger.

Management areas will be a mosaic of stands of successional stages of natural vegetative communities. Oaks will be the dominant species, but a variety of other hardwoods will also be present, as will shortleaf pine, eastern redcedar, and grassland communities. The trees within each stand will generally be of the same age and size. Stands will range from seedlings to mature trees. These intermixed stands will be irregular in size and shape and distributed so the overall forest appears natural. There will be many openings interspersed among stands of trees. Animals associated with all successional stages of vegetation will be present. Species associated with the mid and late successional plant communities will predominate.

There will often be evidence of human activities, but usually in harmony with the natural appearing environment. Land management practices such as timber harvest will be evident. Interaction between users will be moderate.

Roads will provide access to most of the area and be surfaced with aggregate or soil. Generally the system road network will have a road density of 2 miles or less per square mile of National Forest System land. These areas will normally have substantial public motorized access. Some roads will be closed for various periods to provide nonmotorized recreational opportunities. The Forest will be accessible for a variety of dispersed recreation. The user should be capable of exercising outdoor skills in an environment that offers a moderate degree of challenge and risk. The opportunity to experience solitude, independence and closeness to nature is present in many areas. It is not guaranteed however because of other resource activities. Developed recreation opportunities may also be provided.

Minerals exploration and development may be permitted and will be coordinated with surface resource management. All road classes, transmission line and pipeline corridors and other related facilities may be permitted. Facility design and density will be in harmony with a natural-appearing environment.

Management Practices and Associated Standards and Guidelines: MA 3.1

1900 Land and Resource Management Planning

Vegetation

Manage successional stages of vegetation characteristic of natural vegetation community development appropriate to the site. (Reference Forest-wide standards and guidelines 1900 - Vegetative Management)

Existing vegetation communities, for example legumes, food plots, fescue pastures, or pine plantations, which differ from the natural communities for a particular site shall be allowed to revert to natural vegetation.

Investment in hastening the natural community re-establishment process will not be made unless it provides a specific resource output.

Native species and natural materials will be preferred for restoration if available in sufficient quantities and capable of accomplishing restoration objectives. If not adequate or available other species and materials may be used.

2200 Range Management

Development of the grazing resource may proceed when natural grasslands occur as a relatively stable community or seral stage.

Graze as feasible, non-native and off-site native grasses until they revert naturally to woody vegetation or appropriate native grasses or until capital investments require a major overhaul or reconstruction.

Invest at moderate to high levels on natural grasslands.

2300 Recreation Management

Recreation Opportunities

Apply Roaded Natural ROS class objectives to this area.

Trails

Density for all types of trails should not exceed an average of 2 miles per square mile of National Forest System land. This density may be exceeded in motorized trail complexes, i.e., Chadwick Motorcycle Area.

Visual Management

All resource management activities will meet, as the minimum, the Visual Quality Objectives displayed below:

Variety Class	VISUAL QUALITY OBJECTIVE						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive		Least Sensitive	
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	R	PR	PR	PR	M	M	M
Common-Class B	PR	M	M	PR	M	MM	MM
Minimal-Class C	PR	M	M	M	MM	MM	MM

Distance Zones: fg-foreground; mg-middleground; bg-background

VQO: R-Retention; PR-Partial Retention; M-Modification; MM-Maximum Modification

Major earth disturbing activities should normally not be undertaken on Ecological Land Types (ELT) with Visual Absorption Capacity (VAC) ratings identified in Forest-wide standards and guidelines lower than those shown below:

Variety Class	VISUAL ABSORPTION CAPACITY						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive		Least Sensitive	
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	M	M	ML	M	ML	ML	ML
Common-Class B	M	ML	ML	M	ML	L	L
Minimal-Class C	M	ML	L	ML	L	L	L

VAC: H = High; H-M = High-Moderate; M = Moderate; M-L - Moderate Low; L = Low

2400 Timber Management

Temporary Openings Created by the Application of Even-aged Silviculture

The maximum size of a temporary opening created by even-aged management is 40 acres.

Not more than 10 chains of temporary opening may occur along any 40 chains (0.5 mile) of hiker or horse trail during this Plan period.

Management Intensity and Utilization

Rotation ages, other than for old growth stands, are 60 to 130 years during the pre-regulated condition and 60 to 110 in the regulated condition.

Thinnings will be designed to maintain the species composition associated with natural communities for particular ecological land types.

This management area may be used as a natural gene pool source.

Reforestation

Reforestation will be by the natural regeneration method.

Timber Stand Improvement

There will be no release or precommercial thinning practices conducted within this management area.

2600 Wildlife

Provide habitat for native and naturalized fish and wildlife common to the area within constraints of natural vegetative communities.

The horizontal diversity of plant and animal communities will be determined by managed natural communities, as defined in Forest-wide standards and guides 1900. Species not found in the natural communities will not be introduced. Unnatural community composition will not be maintained and will be phased out through utilization opportunities and natural processes.

The vertical diversity of plant and animal communities will be determined by the proportion of seral stages of natural communities developed to meet the habitat objectives defined for this management prescription.

Permanent water sources may be developed when water is shown to be a limiting factor in meeting habitat needs for indicator species. Existing waterholes will be maintained.

The following habitat conditions will be sought in the attainment of Management Prescription 3.1 steady state objectives. The objective of each plan period will be to move habitat conditions toward these steady-state objectives as individual management area opportunities permit.

Landtype Association: Oak-Pine Breaks	Percent NFSL
Woodland habitat in the 0-9 year age class:	7-15 percent
Woodland habitat in old growth condition:	8-12 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	35-45 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	35-45 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	3- 6 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Pine Hills and Plains	Percent NFSL
Woodland habitat in the 0-9 year age class:	7-15 percent
Woodland habitat in old growth condition:	8-12 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	35-45 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	35-45 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	4-10 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Pine Mountains	Percent NFSL
Woodland habitat in the 0-9 year age class:	4- 8 percent
Woodland habitat in old growth condition:	8-12 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	45-55 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	5-10 percent
Open and semi-open habitats:	4-15 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Hickory Breaks	Percent NFSL
Woodland habitat in the 0-9 year age class:	6-15 percent
Woodland habitat in old growth condition:	8-12 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	45-55 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	5-10 percent
Open and semi-open habitats:	3- 6 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Hickory Hills and Plains	Percent NFSL
Woodland habitat in the 0-9 year age class:	6-15 percent
Woodland habitat in old growth condition:	8-12 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	45-55 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub groundcover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	5-10 percent
Open and semi-open habitats:	4-10 percent
Permanent water sources per square mile:	1 source

Landtype Association: Cedar Glades Breaks and Hills	Percent NFSL
Woodland habitat in the 0-9 year age class:	3- 8 percent
Woodland habitat in old growth condition:	8-12 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	20-30 percent
20-30 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitats:	10-20 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Bluestem Plains**Percent NFSL**

Woodland habitat in the 0-9 year age class:	4- 6 percent
Woodland habitat in old growth condition:	5-10 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	25-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	N/A
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitats:	30-50 percent
Permanent water sources per square mile:	1 source

Average per acre (NFSL) woodland habitat cavity tree and snag objectives for Management Prescription 3.1 by landtype associations are:

<u>LTA</u>	<u>DBH Class</u>	<u>Cavity Trees/Ac</u>	<u>Snags/Ac</u>
OP-B-H-P	19 inches plus	0.5	0.5
(exception	11-18 inches	3.0	3.0
noted below)	10 inches or less	2.0	2.0
OH-H-P			
OH-B	19 inches plus	0.5	0.5
OPM	11-18 inches	4.0	4.0
OPB-White	10 inches or less	2.0	2.0
River			
Natural			
Division			
OBP			
CG-H-B			

Woodland habitat has a management objective for wildlife food tree species of at least 5 square feet of basal area per acre (NFSL).

Within each clearcut or seedtree unit, retain a minimum of 15 sq. ft. of basal area of reserve trees. Within each shelterwood unit, retain a minimum of 25 sq. ft. of basal area of reserve trees. Group or retain these trees around large snags, large live trees, den trees, and within intermittent drainages to minimize potential for windthrow and provide thermal protection of suitable Indiana bat roost trees.

Habitat Objectives for large openland situations under Management Prescription 3.1 are:

	Large Glades Areas	Small Glades Areas	Large Cool- Season Areas	Small Cool- Season Areas	Cool/ Warm- Season Areas	Large Warm- Season Areas	Small Warm- Season Areas
Percent of area in warm-season grass	100	100	N/A	100	100	100	100
Minimum percent of forbs in total dry weight	15	30	N/A	N/A	*	20	15
Minimum percent of herbaceous vegetation with variable structures	30	100	10	10	*	50	50
Percent crown closure of trees in draws and pastures	0-20	15-30	**	**	*	10	5
Percent crown closure of shrubs in draws and pastures	5-20	15-30	**	**	*	10	5
Minimum percent of dens and snags to be protected	100	25	100	100	*	100	100

* - Refer to cool and warm season guides as appropriate
 ** - Retain vegetation as it occurs naturally on area.

	Large Glades Areas	Small Glades Areas	Large Cool- Season Areas	Small Cool- Season Areas	Cool/ Warm- Season Areas	Large Warm- Season Areas	Small Warm- Season Areas
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Distri- bution of dens and snags	N/A	N/A	1/Ac	1/Ac	*	1/Ac	N/A
			20% of Area	20% of Area		20% of Area	

* - Refer to cool and warm season guides as appropriate

** - Retain vegetation as it occurs naturally on area.

2800 Minerals and Geology

Mineral Exploration

Surface disturbing exploration (including core drilling) will be permitted in most areas.

Residue treatment will meet the visual quality objective for the site.

If existing access routes are not available to the drill site, a temporary access may be constructed to provide minimum width and grade for the drilling rig and pipe trucks. (Reference Forest-wide standards and guidelines, 7700)

Common Variety Minerals

Permit removal of common variety minerals from isolated, well-screened locations.

5100 Fire Management

Determine the level of fire prevention and suppression by the value at risk within each management area. On a scale of 1 (high) to 5 (low) the value at risk within this management area is estimated at "3", except at developed recreation and administration sites which are characterized as "2".

7300 Buildings and Structures

Buildings and structures may be provided to support resource management objectives.

7700 Transportation System

Provide on the average up to 2 miles of permanent roads per square mile of National Forest System land. This density will include unimproved woods road mileage and could also include up to 1 mile of arterial or collector road.

MANAGEMENT PRESCRIPTION 3.2

This prescription emphasizes the intensive management of hardwood species capable of yielding high value products.

Purposes of this Prescription:

- (1) To provide for intensive management of hardwood species such as white oak, black oak, northern red oak, and black walnut which are capable of yielding high value wood products.
- (2) To provide for moderate to high production of other resources such as fish and wildlife, recreation, forage, and minerals.
- (3) To provide dispersed recreation opportunities featuring a roaded natural recreation environment.
- (4) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Conditions:

Management areas will normally be 2,500 acres or larger in size.

Management areas will feature intensive culture of high value hardwood species such as white oak, northern red oak, black oak and black walnut on the more productive sites. Oaks will be the dominant species, but other hardwoods will be present, as will shortleaf pine, eastern redcedar and grass communities. The trees within an individual stand will generally be of the same age and size. Stands will range from seedlings to mature trees. These intermixed stands of irregular size and shape will be distributed so the overall forest appears natural. There will be a few permanent openings interspersed among the tree stands.

There will often be evidence of human activities, but usually in harmony with the natural environment. Timber harvest will be evident. Interaction between users will vary from low to high, depending on location. Restrictions and controls on the user may be evident.

Roads will provide access to most of the area and will be surfaced with aggregate or soil. Generally the system road network will have a road density of 2 miles or less per square mile of National Forest System land. This area will normally have substantial public motorized access. Some roads will be closed for various periods to provide nonmotorized recreational opportunities. The Forest will be accessible for a wide variety of dispersed recreational activities. Some developed recreational opportunities may also be provided. The recreation user should be capable of exercising outdoor skills in an environment that offers a moderate degree of challenge and risk.

Mineral exploration and development may be permitted but will be coordinated with surface resources. All classes of roads, transmission lines and pipeline corridors, and other related facilities may be permitted. Facility design and density will be in harmony with a natural appearing landscape.

Management Practices and Associated Standards and Guidelines: MA 3.2

1900 Land and Resource Management Planning

Vegetation

Manage high value hardwood species intensively to meet projected demand where standards and guidelines permit.

Manage other vegetation intensively to respond to demand.

Vegetation species and materials used in restoration work will be those which permit the achievement of the restoration objective at the least cost.

2200 Range Management

Grazing and haying may be used to manage sites for vegetation objectives.

Invest at low to moderate levels for forage management on grasslands where it is needed to meet wildlife objectives.

2300 Recreation Management

Recreation Opportunities

Apply Roaded Natural ROS class objectives to this area.

Trails

Trail density for all types of trails should not exceed an average of 2 miles per square mile of National Forest System land.

Visual Management

All resource management activities will meet, as the minimum, the Visual Quality Objectives displayed below:

Variety Class	VISUAL QUALITY OBJECTIVE						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	R	PR	PR	PR	M	M	M
Common-Class B	PR	M	M	PR	M	MM	MM
Minimal-Class C	PR	M	M	M	MM	MM	MM

Distance Zones: fg-foreground; mg-middleground; bg-background

VQO: R-Retention; PR-Partial Retention; M-Modification; MM-Maximum Modification

Major earth disturbing activities should normally not be undertaken on Ecological Land Types (ELT) with Visual Absorption Capacity (VAC) ratings identified in Forest-wide standards and guidelines lower than those shown below:

Variety Class	VISUAL ABSORPTION CAPACITY						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	M	M	ML	M	ML	ML	ML
Common-Class B	M	ML	ML	M	ML	L	L
Minimal-Class C	M	ML	L	ML	L	L	L

VAC: H = High; H-M = High-Moderate; M = Moderate; M-L = Moderate-Low;
L = Low

2400 Timber Management

Harvesting

Ecological Landtype 7 and 18 will be managed under the uneven-aged silvicultural system regardless of species composition.. The group selection cutting method in areas from 0.25 to 2 acres in size will be used for regeneration. Improvement cuts may be applied to create desirable stand structures.

Temporary Openings Created by the Application of Even-Aged Silviculture

The maximum size of a temporary opening created by even-aged management is 40 acres.

Not more than 10 chains (660 feet) of temporary opening may occur along any 40 chains (0.5 mile) of hiker or horse trail during this Plan period.

Management Intensity and Utilization

Manage sites for high value hardwoods after multiple use management objectives are met.

- a. Ecological land types 3, 7, 8, 10, 12 through 15, 18, 29, and 35 when capable of producing at least a mean annual increment of 50 cubic feet per acre per year.
- b. Existing stands must be capable of producing at least 60 percent stocking of high value hardwood trees by the end of the rotation.

Rotation ages, other than for old growth stands, are 60 to 160 years during the pre-regulated condition and 60 to 150 in the regulated condition.

Reforestation

Reforestation will be by natural regeneration methods except as needed to meet high value hardwood stocking objectives.

Timber Stand Improvement

Release practices will not be applied. Precommercial thinning practices may be applied within Forest-wide standards and guidelines.

2600 Wildlife Management

Provide habitats for native and naturalized fish and wildlife common to the area while emphasizing habitat associated with mid and late successional stages of plant communities common to the oak-hickory and oak-pine forest.

Horizontal diversity of plant and animal communities will be determined by the area's capability for high value hardwood production and that of other outputs associated with this management area.

Vertical diversity of plant and animal communities will be determined by the intensity of silvicultural and grassland management within stands managed for high value hardwoods and to produce other associated outputs. The habitat objectives for management indicator species will be a constraint on intensity of silvicultural or grassland treatment affecting vertical diversity (stand structure).

Permanent water sources may be developed when water is shown to be a limiting factor in meeting habitat needs for indicator species. Existing waterholes will be maintained.

The following habitat conditions will be sought in the attainment of Management Prescription 3.2 steady state objectives. The objective of each plan period will be to move habitat conditions toward these steady-state objectives as individual management area opportunities permit. Objectives are in terms of percent of National Forest System lands.

Landtype Association: Oak-Pine Breaks	Percent of NFSL
Woodland habitat in the 0-9 year age class:	8-15 percent
Woodland habitat in old growth condition:	8-12 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	35-45 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	4- 6 percent
Permanent water sources per square mile:	1- 2 source

Landtype Association: Oak-Pine Hills and Plains	Percent of NFSL
Woodland habitat in the 0-9 year age class:	8-15 percent
Woodland habitat in old growth condition:	8-12 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	35-45 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	35-45 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	4-10 percent
Permanent water sources per square mile:	1- 2 source

Landtype Association: Oak-Hickory Breaks, Hills and Plains	Percent of NFSL
Woodland habitat in the 0-9 year age class:	8-15 percent
Woodland habitat in old growth condition:	8-12 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	4-10 percent
Permanent water sources per square mile:	1- 2 source

Management Prescription 3.2 is not applicable to the Oak-Pine Mountains, Cedar Glade Breaks and Hills, or Oak-Bluestem Plains Landtype Associations.

Average per acre (NFSL) woodland habitat cavity tree and snag objectives for Management Prescriptions 3.2 by Landtype Associations are:

<u>LTA</u>	<u>DBH Class</u>	<u>Cavity Tree/Ac</u>	<u>Snags/Ac</u>
OP, BHP	19 inches plus	0.5	0.5
OHBHP	11-18 inches	3.0	3.0
	10 inches or less	2.0	2.0

Woodland habitats have a management objective for wildlife food tree species of at least 5 square feet of basal area per acre (NFSL).

Within each clearcut or seedtree unit, retain a minimum of 15 sq. ft. of basal area of reserve trees. Within each shelterwood unit, retain a minimum of 25 sq. ft. of basal area of reserve trees. Group or retain these trees around large snags, large live trees, den trees, and within intermittent drainages to minimize potential for windthrow and provide thermal protection of suitable Indiana bat roost trees.

Habitat objectives for large openland situations under Management Prescription 3.2 are:

	<u>Large Glades Areas</u>	<u>Small Glades Areas</u>	<u>Large Cool-Season Areas</u>	<u>Small Cool-Season Areas</u>	<u>Cool/Warm-Season Areas</u>	<u>Large Warm-Season Areas</u>	<u>Small Warm-Season Areas</u>
Percent of area in warm-season grass	N/A	100	N/A	N/A	60	N/A	100
Minimum percent of forbs in total dry weight	N/A	30	N/A	20	20 cs 15 ws	N/A	15
Minimum percent of herbaceous vegetation with variable structures	N/A	100	N/A	25	25 cs 50 ws	N/A	50
Percent crown closure of trees in draws and pastures	N/A	15	N/A	5	5	N/A	5

	Large Glades Areas	Small Glades Areas	Large Cool- Season Areas	Small Cool- Season Areas	Cool/ Warm- Season Areas	Large Warm- Season Areas	Small Warm- Season Areas
Percent crown closure of shrubs in draws and pastures	N/A	15	N/A	15	15 cs 10 ws	N/A	10
Minimum percent of dens and snags to be protected	N/A	25	N/A	50	50	N/A	50
Distri- bution of dens and snags	N/A	N/A	N/A	1/ac 20% of area	1/ac 20% of area	N/A	1/ac 20% of area

2800 Minerals and Geology

Mineral Exploration

Surface disturbing exploration (including core drilling) will be permitted in most areas.

Residue treatment will meet the visual quality objective for the site.

If existing access routes are not available to the drill site, a temporary access may be constructed to provide minimum width and grade for the drilling rig and pipe trucks. (Reference Forest-wide standards and guidelines 7700)

Common Variety Minerals

Permit removal of common variety minerals from isolated, well-screened locations.

5100 Fire Management

Determine the level of fire prevention and suppression by the value at risk within each management area. On a scale of 1 (high) to 5 (low) the value at risk within this management area is estimated at "2".

7300 Buildings and Structures

Buildings and structures may be provided to support resource management objectives.

7700 Transportation System

Provide on the average up to 2 miles of permanent roads per square mile of National Forest System land. This density will include unimproved woods road mileage and could also include up to 1 mile of arterial or collector road.

MANAGEMENT PRESCRIPTION 3.3

This prescription emphasizes grassland management for the production of cattle.

Purposes of this Prescription:

- (1) To provide for intensive management of grasslands for forage.
- (2) To provide low to moderate timber outputs from associated woodlands.
- (3) To provide dispersed recreation opportunities featuring a rural recreation environment.
- (4) To provide for moderate to high production of other resources such as fish and wildlife, recreation, and minerals.
- (5) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition:

In the southwest portion of the Forest these areas can be as large as 2,500 acres in size. In other portions of the Forest they will range from 500 to 1,000 acres. This goal provides the best opportunity for range outputs from grassland environments. Opportunities to maximize coordinated range outputs may occur. Grazing allotments and special uses will be common. Wildlife species associated with early successional stages of vegetation and grasslands will be favored. Woody plant communities will occur in substantial quantities but be limited to those areas where grassland management is undesirable due to economics or natural limitations.

There will be 2 miles or less of system road per square mile of National Forest System land. Motorized access may be controlled within livestock grazing areas. All road classes, transmission lines, and pipelines and other related facilities may be permitted. Facility design and density will be in harmony with the natural appearing landscape. Low to moderate timber outputs will be possible. A variety of recreational opportunities will exist.

The openland and timber land mosaic will present a natural appearance. Interaction between users will vary from low to high. The opportunity to experience solitude, independence and closeness to nature is not generally present due to intrusions from other activities.

Mineral exploration and development may be permitted but will be coordinated with surface resource management.

Management Practices and Associated Standards and Guidelines: MA 3.3

1900 Land and Resource Management Planning

Vegetation

Manage the forage resource to meet projected range demand where standards and guidelines permit.

Manage other vegetation to respond to demand.

2200 Range Management

Provide improvements and controls to protect, maintain and enhance the forage resource in the presence of grazing or utilization.

Forage development will receive priority on sites capable of producing it economically after multiple use management objectives are met.

2300 Recreation Management

Recreation Opportunities

Apply Rural ROS class objectives to this area (Regional Goal 3 features Roded Natural ROS class).

Coordinate public and permittee use of grazing allotments to minimize conflicts with recreation.

Public access by motor vehicles will be prohibited within range allotments except as permitted on constant service roads.

Trails

Density for all types of trails should not exceed an average of 2 miles per square mile of National Forest System land.

Visual Management

All resource management activities will meet, as the minimum, the Visual Quality Objectives displayed below:

Variety Class	VISUAL QUALITY OBJECTIVE						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	R	PR	PR	PR	M	M	M
Common-Class B	PR	M	M	PR	M	MM	MM
Minimal-Class C	PR	M	M	M	MM	MM	MM

Distance Zones: fg-foreground; mg-middleground; bg-background

VQO: R-Retention; PR-Partial Retention; M-Modification; MM-Maximum Modification

Major earth disturbing activities should normally not be undertaken on Ecological Land Types (ELT) with Visual Absorption Capacity (VAC) ratings identified in Forest-wide standards and guidelines lower than those shown below:

Variety Class	VISUAL ABSORPTION CAPACITY						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	M	M	ML	M	ML	ML	ML
Common-Class B	M	ML	ML	M	ML	L	L
Minimal-Class C	M	ML	L	ML	L	L	L

VAC: H = High; H-M = High-Moderate; M = Moderate; M-L = Moderate-Low; L = Low

2400 Timber Management

Harvesting

Eastern redcedar stands on lands available and suitable for timber production may be managed under the uneven-aged silvicultural system to the extent other management area objectives are effectively met. The group selection cutting method will be used for regeneration. Group size is from 0.25 to 2 acres. Improvement cuts may be made to achieve stand structure objectives.

Temporary Openings Created by the Application of Even-aged Silviculture

The maximum size of a temporary opening created by even-aged management is 40 acres.

Not more than 10 chains (660 feet) of temporary openings may occur along any 40 chains (0.5 mile) of hiker or horse trail during this plan period.

Management Intensity and Utilization

Lands unneeded for range or wildlife objectives will be managed for future stand condition objectives.

Rotation ages, other than for old growth stands, are 60 to 150 years during the pre-regulated condition and 60 to 120 in the regulated condition.

Reforestation

Reforestation will be by natural regeneration methods.

Timber Stand Improvement

Release or precommercial thinning practices will not be applied.

2600 Wildlife Management

Provide habitat for native and naturalized fish and wildlife common to the area while emphasizing habitat for wildlife species associated with grasslands and early successional stages of plant communities.

Permanent water sources will be developed when water is a limiting factor in meeting wildlife habitat or range allotment objectives. Existing waterholes will be maintained.

Wildlife habitat objectives on non-range sites within Management Area 3.3 located in the Cedar Glade Landtype Association will be to achieve potential habitat parameters for Management Prescription 3.4.

The following habitat condition will be sought in the attainment of Management Prescription 3.3 steady state objectives. The objective of each plan period will be to move habitat conditions toward these steady state objectives as individual management area opportunities permit. Objectives are in terms of percent of National Forest System lands:

Landtype Association: Cedar Glades Breaks and Hills	Percent NFSL
Woodland habitat in the 0-9 year age class:	3- 8 percent
Woodland habitat in old growth condition:	8-12 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	20-30 percent
20-30 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitats:	10-20 percent
Permanent water sources per square mile:	1 source

Average per acre (NFSL) woodland habitat cavity tree and snag objectives for Management Prescription 3.3 on the Cedar Glade Breaks and Hills are:

<u>LTA</u>	<u>DBH Class</u>	<u>Cavity Tree/Ac</u>	<u>Snags/Ac</u>
CG, HB	19 inches plus	0.5	0.5
	11-18 inches	4.0	4.0
	10 inches or less	2.0	2.0

Woodland habitats have a management objective for wildlife food tree species of at least 5 square feet of basal area per acre (NFSL).

Within each clearcut or seedtree unit, retain a minimum of 15 sq. ft. of basal area of reserve trees. Within each shelterwood unit, retain a minimum of 25 sq. ft. of basal area of reserve trees. Group or retain these trees around large snags, large live trees, den trees, and within intermittent drainages to minimize potential for windthrow and provide thermal protection of suitable Indiana bat roost trees.

Habitat objectives for large openland situations under Management Prescription 3.3 are:

	<u>Large Glades Areas</u>	<u>Small Glades Areas</u>	<u>Large Cool-Season Areas</u>	<u>Small Cool-Season Areas</u>	<u>Cool/Warm-Season Areas</u>	<u>Large Warm-Season Areas</u>	<u>Small Warm-Season Areas</u>
Percent of area in warm-season grass	100	N/A	N/A	N/A	60	100	100
Minimum percent of forbs in total dry weight	15	N/A	15	15	*	10	10
Minimum percent of herbaceous vegetation with variable structures	30	N/A	10	5	*	10	5
Percent crown closure of trees in draws and pastures	0-20	N/A	5-10	0	*	0-5	0

	Large Glades Areas	Small Glades Areas	Large Cool- Season Areas	Small Cool- Season Areas	Cool/ Warm- Season Areas	Large Warm- Season Areas	Small Warm- Season Areas
Percent crown closure of shrubs in draws and pastures	5-20	N/A	2-10	0-5	*	2-5	2-5
Minimum percent of dens and snags to be protected	100	N/A	100	0	*	100	0
Distri- bution of dens and snags	N/A	N/A	1/ac 20% of area	0	*	1/ac 20% of area	0

* Refer to the cool and warm-season guides as appropriate.

2800 Minerals and Geology

Mineral Exploration

Surface disturbing exploration (including core drilling) will be permitted in most areas.

Residue treatment will meet the visual quality objective for the site.

If existing access routes are not available to the drill site, a temporary access may be constructed to provide minimum width and grade for the drilling rig and pipe trucks. (Reference Forest-wide standards and guidelines 7700)

Common Variety Minerals

Permit removal of common variety minerals from isolated, well-screened locations.

5100 Fire Management

Determine the level of fire prevention and suppression by the value at risk within each management area. On a scale of 1 (high) to 5 (low) the value at risk within this management area is estimated at "4", except at developed recreation and administration sites which are characterized as "2".

7300 Buildings and Structures

Buildings and structures may be provided to support resource management objectives.

7700 Transportation System

Provide on the average up to 2 miles of permanent roads per square mile of National Forest System land. This density will include unimproved woods road mileage and also include up to 1 mile of arterial or collector road.

MANAGEMENT PRESCRIPTION 3.4

This prescription provides a managed forest which emphasizes wildlife habitat diversity to maintain and enhance populations of native and naturalized vertebrates.

Purposes of this Prescription:

- (1) To emphasize wildlife habitat diversity by maintaining and enhancing populations of native and naturalized vertebrates and the habitat for management indicator species.
- (2) To emphasize recreational opportunities based on consumptive and nonconsumptive use of wildlife and fish.
- (3) To provide dispersed recreation opportunities featuring a roaded natural recreation environment.
- (4) To provide for moderate to high production of other resources such as timber products, recreation, forage, and minerals.
- (5) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition:

Management areas will generally be 2,500 acres or larger.

Management areas will provide a diverse natural appearing mosaic of stands. Various stages of vegetative communities development will be featured. Oaks will be the dominant species, however, a variety of other hardwoods will also be present, as will shortleaf pine, eastern redcedar and grassland. Individual stands will have irregular shapes and varying sizes. The trees within each stand will be about the same age and size. Stands will range from seedlings to large trees. Openings of various sizes will be interspersed among the tree stands.

Intensity of terrestrial and aquatic wildlife habitat management may vary with size of ownership, access, demand, and capability to respond to management activities. Interspersion of age and size classes of trees and openings will satisfy the habitat needs of management indicator species.

There may often be evidence of human activities, but it will be in harmony with the natural appearing environment. Interaction between users will be moderate.

The area may be readily accessible by a road network composed of all road classes. Generally the network will have a road density of 2 miles or less per square mile of National Forest System land. Public motorized use of this road network will be managed to complement wildlife resource management objectives. Transmission lines and pipeline corridors and other related facilities may be permitted. Facility design and density will be in harmony with a natural appearing environment.

Mineral exploration and development may be permitted and will be coordinated with surface resource values.

The user should be capable of exercising outdoor skills in an environment that offers a moderate degree of risk and challenge. The opportunity to experience solitude, independence, and closeness to nature may be present. It is not guaranteed however because of intrusions from other activities. Developed recreation opportunities may be provided.

Management Practices and Associated Standards and Guidelines: MA 3.4

1900 Land and Resource Management Planning

Vegetation

Manage wildlife habitat intensively where standards and guidelines permit cost effective habitat improvement.

Manage other vegetation intensively to respond to demand.

Vegetation species and materials used in restoration work will be those that permit the achievement of the restoration objective at the least cost.

2200 Range Management

Range management practices shall be appropriately constrained to avoid adverse effects on wild animal populations, jeopardy to viable populations of any existing native or naturalized vertebrate species or the habitat of management indicator species.

Permit grazing or haying where it helps achieve, or does not conflict with, wildlife objectives.

Invest in moderate to high levels of forage management on grasslands when it does not conflict with wildlife objectives.

2300 Recreation Management

Recreation Opportunities

Apply Roaded Natural ROS class objectives to this area.

Off-road vehicle areas will not be developed within this management area.

Trails

Density for all types of trails should not exceed an average of 2 miles per square mile of National Forest System lands.

Visual Management

All resource management activities will meet, as the minimum, the Visual Quality Objectives displayed below:

Variety Class	VISUAL QUALITY OBJECTIVE						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive		Least Sensitive	
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	R	PR	PR	PR	M	M	M
Common-Class B	PR	M	M	PR	M	MM	MM
Minimal-Class C	PR	M	M	M	MM	MM	MM

Distance Zones: fg-foreground; mg-middleground; bg-background

VQO: R-Retention; PR-Partial Retention; M-Modification; MM-Maximum Modification

Major earth disturbing activities should normally not be undertaken on Ecological Land Types (ELT) with Visual Absorption Capacity (VAC) ratings identified in Forest-wide standards and guidelines lower than those shown below:

Variety Class	VISUAL ABSORPTION CAPACITY						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive		Least Sensitive	
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	M	M	ML	M	ML	ML	ML
Common-Class B	M	ML	ML	M	ML	L	L
Minimal-Class C	M	ML	L	ML	L	L	L

Distance Zones: fg-foreground; mg-middleground; bg-background

VAC: H = High; H-M = High-Moderate; M = Moderate; M-L = Moderate-Low; L = Low

2400 Timber Management

Temporary Openings Created by the Application of Even-aged Silviculture

The maximum size of a temporary opening created by even-aged management is 40 acres.

Not more than 10 chains (660 feet) of temporary opening may occur along any 40 chains (0.5 mile) of hiker or horse trail during this plan period.

Management Intensity and Utilization

Timber outputs will be the result of achieving specific animal habitats.

Rotation ages, other than for old growth stands, are 60 to 150 during the pre-regulated conditions and 60 to 120 in the regulated condition.

Reforestation

Reforestation will be by natural regeneration methods.

Timber Stand Improvements

Release and precommercial thinning practices may be applied within Forest-wide standards and guidelines.

2600 Wildlife Management

Provide habitat for native and naturalized fish and wildlife species common to the area. Enhance habitat for management indicator species groups. Emphasize habitat for those species most sought by the public.

Horizontal and vertical plant and animal diversity will be the result of achieving habitat objectives by wildlife habitat associations within State Natural Division categories.

Permanent water sources will be developed as necessary to meet optimum habitat for management indicator species. Existing waterholes will be maintained.

The following habitat conditions will be sought in the attainment of Management Prescription 3.4 steady state objectives. The objective of each plan period will be to move habitat conditions toward these steady-state objectives as individual management area opportunities permit. Objectives are in percent of National Forest System lands.

Due to designation of the 2810 acre Carmen Springs State Natural Area, the reconfigured Willow Springs Management Area 3.41 will not be required to meet the Forest Plan old growth objectives for Management Prescription 3.4. The State Natural Area will amply exceed old growth objectives for the immediate area.

Landtype Association: Oak-Pine Breaks	Percent NFSL
Woodland habitat in the 0-9 year age class:	8-15 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	45-55 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	45-55 percent
40-50 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	15-20 percent
Open and semi-open habitats:	7-12 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Pine Hills and Plains	Percent NFSL
Woodland habitat in the 0-9 year age class:	8-15 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	35-45 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	35-45 percent
40-50 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub groundcover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	7-12 percent
Permanent water sources per square mile:	1-4 source

Landtype Association: Oak-Pine Mountains	Percent NFSL
Woodland habitat in the 0-9 year age class:	4- 8 percent
Woodland habitat in old growth condition:	15-20 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
35-45 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	7-15 percent
Permanent water sources per square mile:	1- 4 source

Landtype Association: Oak-Hickory Breaks	Percent NFSL
Woodland habitat in the 0-9 year age class:	4- 6 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	45-55 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
35-45 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	7-15 percent
Permanent water sources per square mile:	1- 4 source

Landtype Association: Oak-Hickory Hills and Plains	Percent NFSL
Woodland habitat in the 0-9 year age class:	8-15 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	45-55 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
40-50 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub groundcover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	10-20 percent
Permanent water sources per square mile:	1- 4 source

Landtype Association: Cedar Glades Breaks and Hills	Percent NFSL
Woodland habitat in the 0-9 year age class:	3- 8 percent
Woodland habitat in old growth condition:	5-20 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	20-30 percent
20-30 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitats:	15-30 percent
Permanent water sources per square mile:	1- 4 source

Landtype Association: Oak-Bluestem Plains	Percent NFSL
Woodland habitat in the 0-9 year age class:	2- 5 percent
Woodland habitat in old growth condition:	5-10 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	25-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	N/A
30-40 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitats:	30-65 percent
Permanent water sources per square mile:	1- 4 source

Average per acre (NFSL) cavity tree and snag objectives by habitats for Management Prescription 3.4 are:

Forest interior (greater than 70% forested)

LTA	DBH Class	Cavity Tree/Ac	Snags/Ac
All	19 inches plus	0.5	0.5
	11-18 inches	4.0	4.0
	10 inches or less	2.0	2.0

Wooded watercourses

LTA	DBH Class	Cavity Tree/Ac
All	19 inches plus	2+
	11-18 inches	14+
	10 inches or less	9+

Semi-open and Open (less than 70% forested)

LTA	DBH Class	Cavity Tree/Ac
All	19 inches plus	3
	11-18 inches	4
	10 inches or less	3

Woodland habitat has a management objective for wildlife food tree species of at least 5 square feet of basal area per acre (NFSL).

Within each clearcut or seedtree unit, retain a minimum of 15 sq. ft. of basal area of reserve trees. Within each shelterwood unit, retain a minimum of 25 sq. ft. of basal area of reserve trees. Group or retain these trees around large snags, large live trees, den trees, and within intermittent drainages to minimize potential for windthrow and provide thermal protection of suitable Indiana bat roost trees.

Habitat objectives for large openland situations under Management Prescription 3.4 are:

	Large Glades Areas	Small Glades Areas	Large Cool- Season Areas	Small Cool- Season Areas	Cool/ Warm- Season Areas	Large Warm- Season Areas	Small Warm- Season Areas
Percent of area in warm-season grass	100	100	N/A	N/A	90	100	100
Minimum percent of forbs in total dry weight	20	30	30	20	*	30	20
Minimum percent of herbaceous vegetation with variable structures	70	100	75	50	*	100	100
Percent crown closure of trees in draws and pastures	20-50	15-30	10-20	0-5	*	10-20	0-5
Percent crown closure of shrubs in draws and pastures	20-50	15-30	20-40	5-30	*	10-20	5-15
Minimum percent of dens and snags to be protected	100	25	100	100	*	100	100

*Refer to cool and warm-season guides as appropriate.

	Large Glades Areas	Small Glades Areas	Large Cool- Season Areas	Small Cool- Season Areas	Cool/ Warm- Season Areas	Large Warm- Season Areas	Small Warm- Season Areas
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Distri- bution of dens and snags	N/A	N/A	1/ac 10% of area	1/ac 20% of area	*	1/ac 10% of area	1/ac 20% of area
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* Refer to cool and warm-season guides as appropriate.

2800 Minerals and Geology

Mineral Exploration

Surface disturbing exploration (including core drilling) will be permitted in most areas.

Residue treatment will meet the visual quality objective for the site.

If existing access routes are not available to the drill site, a temporary access may be constructed to provide minimum width and grade for the drilling rig and pipe trucks. (Reference Forest-wide standards and guidelines 7700)

Common Variety Minerals

Permit removal of common variety minerals from isolated, well-screened locations.

5100 Fire Management

Determine the level of fire prevention and suppression by the value at risk within each management area. On a scale of 1 (high) to 5 (low) the value at risk within this management area is estimated at "3", except at developed recreation and administration sites which are characterized as "2".

7300 Buildings and Structures

Buildings and structures may be provided to support resource management objectives.

7700 Transportation System

Provide on the average up to 2 miles of permanent roads per square mile of National Forest System land. This density will include unimproved woods road mileage and could also include up to 1 mile of arterial or collector road.

MANAGEMENT PRESCRIPTION 3.5

This management prescription provides management to protect Indiana bats and their habitat in and around hibernacula and known sites of reproductively active females in order help reduce the decline of Indiana bat populations range-wide and contribute toward eventual recovery of the species.

Purposes of this Prescription:

- (1) To emphasize management of the habitat most likely to be used as foraging habitat by male Indiana bats in the summer.
- (2) To protect Indiana bat hibernacula and known sites of reproductively active females.

Desired Future Condition:

Management areas will be defined around occupied Indiana bat hibernacula and known sites of reproductively active females. Areas will vary in size, but will extend no more than 5 miles in radius from hibernacula, and no more than ¼ mile in radius from known sites of reproductively active females.

Management areas will provide a continuous supply of suitable roost trees and preferred foraging habitat for Indiana bat.

Management Practices and Associated Standards and Guidelines: MA 3.5

1900 Land and Resource Management Planning

Vegetation

Vegetation management will be done only to improve or enhance Indiana bat habitat, to maintain or enhance natural vegetative communities on appropriate sites (reference Forest-wide Standards and guidelines 1900 - Vegetative Management, pg IV-14 - IV-17), or for public safety.

2200 Range Management

The development of the forage resource will be limited to existing allotments within the Indiana bat areas of influence. Allotment plans will be designed to protect or enhance Indiana bat habitat and water quality values.

2300 Recreation Management

The Semi-Primitive Non-Motorized ROS class will be applied to the area identified as the key area. Semi-Primitive Motorized ROS class shall be applied to all other lands within the areas of influence, except within the boundaries of developed recreation sites.

The Indiana bat areas of influence will be managed to meet the visual quality objective of Modification.

Indiana bat caves will be closed to human visitation from September 15 through April 30.

2400 Timber Management

Timber management practices may be implemented on National Forest lands within the Indiana bat areas of influence only to improve or enhance Indiana bat habitat, to maintain or enhance natural vegetative communities on appropriate sites (reference Forest-wide Standards and guidelines 1900 - Vegetative Management, Forest Plan page IV-14 - IV-17), or for public safety.

2600 Wildlife Management

Each area of influence will consist of the following elements: 1) hibernaculum (cave); 2) key area (cave opening and adjacent stands); 3) primary range (compartments adjacent to key area, up to 5 miles radius from cave)

- 1) Hibernaculum -- Protect each Indiana bat hibernaculum during the period of September 15 to April 30 by restricting human disturbance. Any structure placed at the roost cave entrance must permit Indiana bats to pass without danger and must not alter airflow. Any gate construction should refer to plans of proper gate designs available from the American Cave Association.
- 2) Key Area -- Protect the surface surrounding the hibernaculum by maintaining a minimum of 20 acres of old growth forest around each occupied Indiana bat cave to include cave entrance, area above any known cave passage, foraging corridor, and ridgetops/side slopes around the cave. Maintain an additional 130 acres of mature forest around each occupied Indiana bat cave.
- 3) Primary Range -

Provide a continuous supply of suitable roost trees (Reference Forest Plan page IV-50-1) by maintaining a minimum of 20 percent of the primary range in old growth, and a minimum of 50 percent in oak and oak-pine types over 50 years of age.

Provide ample preferred foraging habitat by maintaining a minimum of 50 percent of the primary range in pole and sawtimber size classes with 50 to 70 percent crown closure.

Natural regeneration may be used to ensure the perpetuation of oak-hickory and oak-pine forests. No more than 7 percent of the primary range may be in woodland habitat in the 0-9 age class at any time.

Provide adequate water sources by maintaining between 1 and 4 water sources per square mile within the primary range.

In order to maintain viable populations of management indicator species, sensitive species, and other threatened and endangered species while providing ample Indiana bat foraging habitat, up to 15 percent of the primary range may be maintained in open or semi-open habitats.

2700 Special Uses Management

Special use permits may be issued within the areas of influence only when they meet the terms and conditions and reasonable and prudent measures of the June 23, 1999 Biological Opinion.

2800 Minerals and Geology

No drilling will be allowed in the key area. Drilling may be permitted in the primary range if it is supported by an environmental analysis and other Forest Plan direction, i.e., Forest-wide riparian area (2600) and mineral management (2800) standards and guidelines.

Use existing openings when available. If existing openings are not available, remove only the minimum vegetation necessary for the drill site itself.

If existing access routes are not available to the drill site, remove only the minimum vegetation necessary to develop a temporary road. (Reference Forest-wide temporary road standards and guidelines 7700).

5100 Fire Management

Determine the level of fire prevention and suppression by the value-at-risk within each management area. On a scale of 1 (high) to 5 (low) the value at risk within this management area is estimated at "1".

All Indiana bat areas of influence will be considered smoke sensitive areas, and burn plans will be written to minimize smoke to the areas of influence and the caves. (Reference Forest-wide fire management standards and guidelines 5100 for smoke sensitive areas, Forest Plan page IV-76.)

7700 Transportation System

The Forest Service road system permitted within this special area is shown on the Forest Plan transportation map, as amended.

MANAGEMENT PRESCRIPTION 4.1

This prescription emphasizes the management of shortleaf pine in its natural range on sites where it is recognized as a dominant or characteristic member of the natural community.

Purposes of this Prescription:

- (1) To provide for the economically efficient production of shortleaf pine timber products.
- (2) To provide dispersed recreation opportunities featuring a roaded natural recreation environment.
- (3) To provide for production of other resources such as hardwood timber products, recreation, forage, fish and wildlife, and minerals.
- (4) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition:

Generally these management areas will be 2,500 acres or more in size. The management of shortleaf pine on suitable sites is emphasized on management areas assigned this prescription. Other plant communities occur in substantial quantities. Forest age and size class distribution will vary across the landscape. These areas will normally have substantial road access. Some roads may be closed periodically to meet management area objectives. Road network density will normally not exceed 2 miles per square mile of National Forest System land. All road classes, transmission line and pipeline corridors and other related facilities will be permitted. Facility design and density will be in harmony with a natural appearing environment. Mineral exploration and development may be permitted and coordinated with surface resources. Those wildlife species associated with shortleaf pine forest and early and mid-successional stages of vegetation will be favored. Man-induced controls may be readily evident to the forest user.

Interaction between users will be low to high depending on the specific location. A variety of recreational opportunities will exist. The opportunity to experience solitude, independence and closeness to nature may be present. It is not guaranteed to the user due to intrusions of other activities. This management area can provide opportunities for forage outputs. Fire management cost can be high due to large pine management investments.

Management Practices and Associated Standards and Guidelines: MA 4.1

1900 Land and Resource Management Planning

Vegetation

Apply intensive shortleaf pine management practices to meet projected demand where standards and guidelines permit.

Manage other vegetation intensively to respond to demand.

Vegetation species and materials used in restoration work will be those which permit the achievement of the restoration objective at the least cost.

2200 Range Management

Grazing or haying may be used to manage sites for vegetation objectives.

Invest at low to moderate levels of forage management on grasslands where it is needed to meet wildlife objectives.

2300 Recreation Management

Recreation Opportunities

Apply Roaded Natural ROS class objectives to this area.

Trails

Density for all types of trails should not exceed an average of 2 miles per square mile of National Forest System land.

Visual Management

All resource management activities will meet, as the minimum, the Visual Quality Objectives displayed below:

Variety Class	VISUAL QUALITY OBJECTIVE						
	Sensitivity Level & Distance Zone						
	Most Sensitive		Sensitive			Least Sensitive	
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	R	PR	PR	PR	M	M	M
Common-Class B	PR	M	M	PR	M	MM	MM
Minimal-Class C	PR	M	M	M	MM	MM	MM

Distance Zones: fg-foreground; mg-middleground; bg-background

VQO: R-Retention; PR-Partial Retention; M-Modification; MM-Maximum Modification

Major earth disturbing activities should normally not be undertaken on Ecological Land Types (ELT) with Visual Absorption Capacity (VAC) ratings identified in Forest-wide standards and guidelines lower than those shown below:

Variety Class	VISUAL ABSORPTION CAPACITY						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive		Least Sensitive	
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	M	M	ML	M	ML	ML	ML
Common-Class B	M	ML	ML	M	ML	L	L
Minimal-Class C	M	ML	L	ML	L	L	L

VAC: H = High; H-M = High-Moderate; M = Moderate; M-L = Moderate-Low; L = Low

2400 Timber Management

Temporary Openings Created by the Application of Even-Aged Silviculture

The maximum size of a temporary opening created by even-aged management is 40 acres.

Not more than 10 chains (660 feet) of temporary openings may occur along any 40 chains (0.5 mile) of hiker or horse trail during this plan period.

Management Intensity and Utilization

These sites may be managed for shortleaf pine after multiple use objectives are met.

Ecological landtypes 10, 11, 14, 15, 17, 24, 28, 30, 31, 34, and 37.

Rotation ages, other than old growth stands, are 50 to 130 years during the pre-regulated condition and 50 to 100 in the regulated condition.

Reforestation

Reforestation will be by either natural or artificial regeneration methods.

Genetically improved seed or stock may be introduced regardless of the presence of adequate regeneration.

Timber Stand Improvement

Release and precommercial thinning practices may be applied within Forest-wide standards and guidelines.

2600 Wildlife Management

Provide habitats for native and naturalized fish and wildlife common to the area while emphasizing habitat associated with early and mid successional stages of plant community development and with the shortleaf pine forest.

Horizontal diversity of plant and animal communities will be determined by the areas capability for shortleaf pine production and other outputs associated with this management area.

Vertical diversity of plant and animal communities will be determined by the intensity of silvicultural and grassland management treatments within stands managed for shortleaf pine and to produce other outputs associated with this management area. The achievement of habitat objectives for management indicator species will be a constraint on intensity of silvicultural or grassland practices.

Permanent water sources will be developed if water is determined to be a limiting factor in meeting habitat objectives. Existing water holes will be maintained.

Management Prescription 4.1 only applies to oak-pine landtype associations.

The following habitat conditions will be sought in the attainment of Management Prescription 4.1 steady state objectives. The objectives of each plan period will be to move habitat conditions toward these steady-state objectives as individual management area opportunities permit. Objectives are in percent of National Forest System Lands.

Landtype Association: Oak-Pine Breaks	Percent NFSL
Woodland habitat in the 0-9 year age class:	8-15 percent
Woodland habitat in old growth condition:	8-10 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	35-45 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	35-45 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	4- 6 percent
Permanent water sources per square mile:	1- 2 source

Landtype Association: Oak Pine Hills and Plains**Percent NFSL**

Woodland habitat in the 0-9 year age class:	8-15 percent
Woodland habitat in the old growth condition:	8-10 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	30-40 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	35-45 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitat:	4-10 percent
Permanent water sources per square mile:	1- 2 source

Landtype Association: Oak-Pine Mountains**Percent NFSL**

Woodland habitat in the 0-9 year age class:	4- 8 percent
Woodland habitat in the old growth condition:	8-10 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	35-45 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	35-45 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub groundcover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitat:	N/A
Permanent water sources per square mile:	1- 2 source

Average per acre (NFSL) woodland habitat cavity tree and snag objectives for Management Prescription 4.1 by landtype association are:

<u>LTA</u>	<u>DBH Class</u>	<u>Cavity Tree/Ac</u>	<u>Snags/Ac</u>
OPB, H,P,M	19 inches plus	0.5	0.5
	11-18 inches	4.0	4.0
	10 inches or less	2.0	2.0

Woodland habitats have a management objective for wildlife food tree species of at least 5 square feet of basal area per acre (NFSL).

Within each clearcut or seedtree unit, retain a minimum of 15 sq. ft. of basal area of reserve trees. Within each shelterwood unit, retain a minimum of 25 sq. ft. of basal area of reserve trees. Group or retain these trees around large snags, large live trees, den trees, and within intermittent drainages to minimize potential for windthrow and provide thermal protection of suitable Indiana bat roost trees.

Habitat objectives for large openland situations under Management Prescription 4.1 are:

	Large Glades Areas	Small Glades Areas	Large Cool- Season Areas	Small Cool- Season Areas	Cool/ Warm- Season Areas	Large Warm- Season Areas	Small Warm- Season Areas
Percent of area in warm-season grass	N/A	100	N/A	N/A	60	N/A	100
Minimum percent of forbs in total dry weight	N/A	30	N/A	20	20 cs 15 ws	N/A	15
Minimum percent of herbaceous vegetation with variable structures	N/A	100	N/A	25	25 cs 50 ws	N/A	50
Percent crown closure of trees in draws and pastures	N/A	15	N/A	5	5	N/A	5
Percent crown closure of shrubs in draws and pastures	N/A	15	N/A	15	15 cs 10 ws	N/A	10
Minimum percent of dens and snags to be protected	N/A	25	N/A	50	50	N/A	50

	Large Glades Areas	Small Glades Areas	Large Cool- Season Areas	Small Cool- Season Areas	Cool/ Warm- Season Areas	Large Warm- Season Areas	Small Warm- Season Areas
Distri- bution of dens and snags	N/A	N/A	N/A	1/ac 20% of area	1/ac 20% of area	N/A	1/ac 20% of area

2800 Minerals and Geology

Mineral Exploration

Surface disturbing exploration (including core drilling) will be permitted in most areas.

Residue treatment will meet the visual quality objective for the site.

If existing access routes are not available to the drill site, a temporary access may be constructed to provide minimum width and grade for the drilling rig and pipe trucks. (Reference Forest-wide standards and guidelines 7700).

Common Variety Minerals

Permit removal of common variety minerals from isolated, well-screened locations.

5100 Fire Management

Determine the level of fire prevention and suppression by the value at risk within each management area. On a scale of 1 (high) to 5 (low) the value at risk within this management area is estimated at "3", except at developed recreation and administration sites which are characterized as "2".

7300 Buildings and Structures

Buildings and structures may be provided to support resource management objectives.

7700 Transportation System

Provide on the average up to 2 miles of permanent roads per square mile of National Forest System land. This density will include unimproved woods road mileage and could also include up to 1 mile of arterial or collector road.

MANAGEMENT PRESCRIPTION 4.2

This prescription emphasizes the production of sawtimber sized eastern redcedar. It is applicable to the southwestern part of the Forest where the capability to grow sawtimber sized eastern redcedar on extensive areas exists. The presence of redcedar markets plays a key role in determining its location.

Purposes of this Prescription:

- (1) To permit intensive management of eastern redcedar stands.
- (2) To provide eastern redcedar timber to dependent markets.
- (3) To provide dispersed recreation opportunities featuring a rural recreation environment.
- (4) To provide for production of other resources such as other timber products, fish and wildlife, recreation forage, and minerals.
- (5) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition:

These areas will be 2,500 acres or more in size. On management areas assigned to this prescription eastern redcedar sawtimber will occur on suitable portions of the landscape. Other plant communities will occupy a majority of the landscape. These will be zones of intensive management with moderate to high road density. Normally road network density would not exceed 2 miles per square mile of National Forest System lands. All road classes, transmission lines, pipelines and other related facilities may be permitted. Facility design and density will be in harmony with a natural appearing environment. Forest age and size class will vary across the landscape. Mineral exploration and development may be permitted and will be coordinated with surface resource management.

Wildlife species associated with the eastern redcedar forest will be favored. Range opportunities on sites being intensively managed for cedar production will be eliminated.

Man-induced controls may be readily evident. Interaction between users may be low to high depending on specific location. The opportunity to experience solitude, independence and closeness to nature may be present. It is not guaranteed due to intrusions from other activities.

Some developed recreation areas may be provided.

Fire management costs can be high in order to protect intensive investments made in highly flammable eastern redcedar stands.

Management Practices and Associated Standards and Guidelines: MA 4.2

1900 Land and Resource Management Planning

Vegetation

Manage eastern redcedar intensively to meet projected demand where standards and guidelines permit.

Manage other vegetation intensively to respond to demand.

Vegetation species and materials used in restoration work will be those which permit the achievement of the restoration objective at the least cost.

2200 Range Management

Make available for range management only those open lands not suited for sawtimber size eastern redcedar production.

Where appropriate permit investment in moderate to high levels of forage management on grasslands.

2300 Recreation Management

Recreation Opportunities

Apply Rural ROS class objectives to this area (Regional Goal 4 features roaded natural ROS class).

Trails

Density for all types of trails should not exceed an average of 2 miles per square mile of National Forest System lands.

Visual Management

All resource management activities will meet, as the minimum, the Visual Quality Objectives displayed below:

Variety Class	VISUAL QUALITY OBJECTIVE						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	R	PR	PR	PR	M	M	M
Common-Class B	PR	M	M	PR	M	MM	MM
Minimal-Class C	PR	M	M	M	MM	MM	MM

Distance Zones: fg-foreground; mg-middleground; bg-background

VQO: R-Retention; PR-Partial Retention; M-Modification; MM-Maximum Modification

Major earth disturbing activities should normally not be undertaken on Ecological Landtypes (ELT) with Visual Absorption Capacity (VAC) ratings identified in Forest-wide standards and guidelines lower than those shown below:

Variety Class	VISUAL ABSORPTION CAPACITY						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	M	M	ML	M	ML	ML	ML
Common-Class B	M	ML	ML	M	ML	L	L
Minimal-Class C	M	ML	L	ML	L	L	L

VAC: H = High; H-M = High-Moderate; M = Moderate; M-L = Moderate - Low; L = Low

2400 Timber Management

Temporary Openings Created by the Application of Even-aged Silviculture

The maximum size of a temporary opening created by even-aged management is 40 acres.

Not more than 10 chains (660 feet) of temporary openings may occur along any 40 chains (0.5 mile) of hiker or horse trail during this plan period.

Management Intensity and Utilization

Manage the following sites for eastern redcedar after meeting multiple use management objectives.

Ecological land types with eastern redcedar as a dominant or characteristic species.

Rotation ages, other than for old growth stands, are 40 to 90 years during the pre-regulated condition and 50 to 80 in the regulated condition.

Reforestation

Reforestation may be by either natural or artificial methods.

Timber Stand Improvement

Release practices may be applied within Forest-wide standards and guidelines.

Precommercial thinning practices will not be applied.

2600 Wildlife Management

Provide habitat for native and naturalized fish and wildlife common to the area while emphasizing habitat associated with early and mid successional stages of plant communities common to the eastern redcedar forest.

Horizontal diversity of plant and animal communities will be determined by the areas capability for eastern redcedar production and that of other outputs associated with this management area.

Vertical diversity of plant and animal communities will be determined by the intensity of silvicultural and grassland management treatments within stands managed for the eastern redcedar and to produce other outputs associated with this management area.

The achievement of habitat objectives for management indicator species will be a constraint on intensity of silvicultural or grassland practices.

Permanent water sources will be developed if water is a limiting factor to achieving the wildlife habitat objective. Existing waterholes will be maintained.

Management Prescription 4.2 applies only to the Cedar Glades Landtype Association.

The following habitat conditions will be sought in the attainment of Management Prescription 4.2 steady state objectives. The objective of each plan period will be to move habitat conditions toward these steady-state objectives as individual management area opportunities permit. Objectives are in percent of National Forest System Land.

Landtype Association: Cedar Glades Breaks and Hills	Percent NFSL
Woodland habitat in the 0-9 year age class:	2- 5 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	20-30 percent
20-30 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitats:	10-20 percent
Permanent water sources per square mile:	1 source

Average per acre (NFSL) woodland habitat cavity tree and snag objectives for Management Prescription 4.2 by landtype association are:

<u>LTA</u>	<u>DBH Class</u>	<u>Cavity Tree/Ac</u>	<u>Snags/Ac</u>
CG,HB	19 inches plus	0.5	0.5
	11-18 inches	3.0	3.0
	10 inches or less	2.0	2.0

Woodland habitat has a management objective in the Cedar Glade Landtype Association of 5 square feet of basal area per acre (NFSL) in wildlife food tree species.

Within each clearcut or seedtree unit, retain a minimum of 15 sq. ft. of basal area of reserve trees. Within each shelterwood unit, retain a minimum of 25 sq. ft. of basal area of reserve trees. Group or retain these trees around large snags, large live trees, den trees, and within intermittent drainages to minimize potential for windthrow and provide thermal protection of suitable Indiana bat roost trees.

Habitat objectives for large openlands are not specified for Management Prescription 4.2.

2800 Minerals and Geology

Mineral Exploration

Surface disturbing exploration (including core drilling) will be permitted in most areas.

Residue treatment will meet the visual quality objective for the site.

If existing access routes are not available to the drill site, a temporary access may be constructed to provide minimum width and grade for the drilling rig and pipe trucks. (Reference Forest-wide standards and guidelines 7700).

Common Variety Minerals

Permit removal of common variety minerals from isolated, well-screened locations.

5100 Fire Management

Determine the level of fire prevention and suppression by the value at risk within each management area. On a scale of 1 (high) to 5 (low) the value at risk within this management area is estimated at "2".

7300 Buildings and Structures

Buildings and structures may be provided to support resource management objectives.

7700 Transportation System

Provide on the average up to 2 miles of permanent roads per square mile of National Forest System land. This density will include unimproved woods road mileage and could also include up to 1 mile of arterial or collector road.

MANAGEMENT PRESCRIPTION 5.1

This prescription applies to Wilderness.

Purpose of this Prescription:

- (1) To administer Wilderness for use and enjoyment by people in a manner that leaves the areas natural characteristics unimpaired.

Desired Future Forest Condition:

Wildernesses provide outstanding opportunities for solitude and primitive or unconfined types of recreation. They may contain exceptional ecological situations or features of scientific, educational, scenic or historic value. Plant and animal diversity will depend entirely on the forces of nature. Vegetation ranges from glades to central hardwoods, mixed hardwood/shortleaf pine and shortleaf pine forests. Animals will predominantly be species that are associated with late successional stages of vegetation. No motorized use will be permitted except as authorized by Law and Regulation. Access will normally be by horse or foot traffic only. There will normally be no developed facilities other than trails. No transmission lines, pipelines, or other facilities will be permitted, except as authorized by law. Interaction between users will be low. Evidence of other uses and man's work will be substantially unnoticeable. Mineral exploration requiring surface disturbance is not permitted. Any private rights within these areas will be acquired when available.

A brief description of the conditions of each Wilderness upon designation is given below.

Wilderness Area Name	Net Acres	Ranger District	Designation Date
Hercules Glades	12,314	Ava	10/19/76
Bell Mountain	8,777	Potosi	12/22/80
Piney Creek	7,927	Cassville	12/22/80
Rock Pile Mountain	4,159	Fredericktown	12/22/80
Devils Backbone	6,595	Willow Springs	12/22/80
Paddy Creek	6,728	Houston	01/03/83
Irish	16,500	Doniphan	05/21/84

Hercules Glades Wilderness

The Hercules Glades Wilderness is within the geological sub-province called the Springfield Plateau. It is characterized by cherty dolomite rocks of Ordovician age. Some of the higher knobs are capped with Mississippian age limestones. The Ordovician Cotter Formation is the primary bedrock. Open glades are found on this formation. Elevations range from 700 feet where the Wilderness borders Beaver Creek, to 1340 feet near the old Hercules Fire Tower site. There are three high knobs that stand out from the other high ridges in the area: Upper and Lower Pilot Knobs, and Coy Bald.

Hercules Glades Wilderness is in the Cedar Glades ecosystem as defined by A. W. Kuchler.

The thinnest soils (Gasconade) have a prairie vegetation, intermingled with eastern redcedar, smoke tree, winged elm, aromatic sumac, chinkapin, and post oak. As the soils become deeper (Opequon) larger trees dominate with a mixture of chinkapin oak, white ash, post oak, blackjack oak, and eastern redcedar. An oak and hickory association is found on the deeper Clarksville soils. There is a shortleaf pine plantation planted during the late 1930's.

The glade areas support grass species common to the great prairies. Big and little bluestem, Indian grass, prairie dropseed, sideoats grama and switch grass are common grasses with an occasional remnant of eastern gama grass occurring. Associated forbs include black-eyed susan, several species of cone flower, goldenrod, shooting star, Missouri primrose and prairie clover. Common shrubs and vines are aromatic sumac, supplejack and redbud.

Most wildlife found in the glade country is commonly found in the Hercules Glade Wilderness. In the Ozarks many of these species are only found in the glade country because of their relation to the prairie grass communities. Examples of these species are the collared lizard, stinging scorpions, road runner, and the Bachman sparrow.

The Long Creek drainage generally runs east to west through the middle of the Wilderness. Portions of Long Creek contain water all year.

Evidence of man's activities remain in the form of 41 miles of woods roads, numerous house foundations, two spring houses, rock fences, concrete spring tanks, watering ponds and some wire fencing.

There is a three acre tract of private land within the Wilderness in Section 8, Township 23N, Range 18W. Access to this tract is through the Wilderness.

The Hercules Glades is the only "Class 1" airshed on the Forest.

Bell Mountain Wilderness

Bell Mountain Wilderness is part of the St. Francois Mountains, one of the oldest landforms in North America. Elevations range from 1,702 feet at Bell Mountain to 970 feet in the Joe's Creek drainage. Local relief is about 600 feet and is characterized by steep felsite and rhyolite outcroppings. Both Bell Mountain and Lindsey Mountain are located within the Wilderness and offer outstanding views of the surrounding area. The associated granite glades provide a variety of interesting plant and animal life.

The area is within the oak-hickory-pine ecosystem as delineated by A. W. Kuchler. Oak and hickory are the predominant tree species with some areas of natural oak-pine and some shortleaf pine plantations. Upland brush and redcedar make up a small portion of the vegetative component. Blackjack oak, winged elm, hickories, sumac, and natural grasses are found on the rock exposure. Lichens abound on the exposed surface rock.

In 1980 it was estimated that one percent of the Wilderness was classified as open.

Shut-in Creek crosses the area. It is a perennial spring-fed stream with several "shut-ins" or gorges along its course. Steep talus slopes intersect the stream course at several locations. Joe's Creek is another small perennial stream within the Wilderness.

The wildlife in the area is typical of the Missouri Ozarks. Present populations are at moderate levels. Big game consists of white-tailed deer and wild turkey. Small game animals include squirrels and rabbits. Bird life ranges from large birds such as hawks, owls, turkey, vultures, and pileated woodpeckers to the small songbirds.

No species which are on the current Federal endangered or threatened species list are known to be present.

Evidences of man's activities can be seen. There are three miles of unimproved road and more woods roads. A utility line crosses the area for .96 miles. Wildlife ponds are scattered throughout. The foundation of an old fire tower and a mine tunnel entrance can be seen. Silver was once mined along Shut-in Creek.

There is a 40 acre and a 10 acre tract of private land within the boundary. Right-of-way through the Wilderness to these private ownerships exists.

Piney Creek Wilderness

The Piney Creek Wilderness has a deeply dissected landform with narrow ridge tops separated from narrow hollows by long, steep slopes. The ridge tops are approximately 400 feet above the streams. The area is underlain by limestone formations. Piney Creek, about five miles long, is the principal stream and the entire watershed is within the Piney Creek Wilderness. Piney Creek flows easterly into the James River arm of Table Rock Reservoir. Small springs can be found along Piney Creek. In the early part of the year the intermittent drainages carry surface water run-off before drying up in late summer.

Piney Creek is within the cedar glades ecosystem as delineated by A. W. Kuchler. A variety of vegetation exists within the area. The ranges of many species of flora converge in this area. Influences from western, eastern, northern and southern types exist. Some varieties are at the limits of their natural ranges. The area is ninety-nine percent forested, with oaks and hickories being the chief species. Black, red, white, post, and blackjack oaks, as well as other varieties, can be found. Other hardwoods such as sycamore, ash, and walnut occur on benches in the drainage. Shortleaf pine and redcedar are also present.

The Corps of Engineers has control over a 43-acre parcel along Piney Creek that is within the flood pool of Table Rock Lake.

Access to several private ownerships along Table Rock Lake is through the Wilderness.

The wildlife is typical of the Missouri Ozarks. Big game consists of white-tailed deer and wild turkey. Small game animals include squirrel, rabbit, coyotes, bobcat, fox and raccoon. Bird life ranges from hawks, owls, turkey vultures, herons, and pileated woodpeckers, to the smaller songbirds. The roadrunner, a bird of the southwest, and the collared lizard, also common to the southwest, are residents of the area.

Evidence of man's activities can be seen in the form of 29 miles of woods roads, 9 wildlife ponds, 2 stock watering tanks, 1.5 miles of utility right-of-way along the boundary, some cross fencing, and some old fields in the flatter drainages.

Rock Pile Mountain Wilderness

The Rock Pile Mountain Wilderness is within the St. Francois Mountains portion of the Ozarks, one of the oldest land forms in North America. Rounded granite knobs overlying dolomitic limestone at lower elevations is the usual topography. Ridges are steep with rocky, wide slopes. Rock Pile Mountain is primarily a broken ridge running from Little Grass Mountain on the north to the National Forest boundary four miles to the south. Elevations range from 1,305 feet to 520 feet. Local relief is about 600 feet. The only public access is by the Faro Tower road on the north. The Wilderness is almost entirely surrounded by private land.

Scenic attractions include Rock Pile Mountain itself, the steep limestone bluffs, rock formations, and caves along the St. Francis River, the narrow gorges or "shut-ins," and the scattered granite glades with their own unique plant and animal communities. The mountain takes its name from an ancient circle of granite rocks piled by some earlier man on the top of the mountain.

The area is within the oak-hickory-pine ecosystem as delineated by A. W. Kuchler. Oak and pine trees dominate with hickory, redcedar, and miscellaneous hardwood species composing a relatively small component of the total vegetation. Mixed hardwoods of walnut, sugar maple, and basswood exist in a moist ravine.

No natural permanent water exists except for the St. Francis River which touches the Wilderness along the southwest corner. Water in the drainages is intermittent, flowing in times of surplus precipitation. Runoff becomes a torrent in some of the small streams following periods of heavy rainfall because of the rapid runoff from the areas of steep rock. A few small springs exist. Five wildlife ponds provide a man-made source of year-round water.

The wildlife within the area is typical of the Missouri Ozarks. Big game consists of white-tailed deer and wild turkey. Small game animals include squirrels, rabbits, and various fur bearers.

Bird life ranges from owls, turkey vultures, and pileated woodpeckers to the smaller songbirds.

Existing signs of man's activities include 15 miles of woods roads, wildlife ponds, wildlife food plots, and remains of a stone and concrete spring house.

There are 40 acres of private land in one tract within the Wilderness boundary.

Devils Backbone Wilderness

Devils Backbone Wilderness is characterized by rugged topography with narrow ridges and hollows separated by long, steep slopes or bluffs. It takes its name from a geologic feature within the boundary - a long, narrow ridge known since early settlement as the Devil's Backbone. Elevations range from 1,020 feet to about 680 feet along the North Fork of the White River which flows through the Wilderness for approximately 1 1/2 miles.

The area is within the oak-hickory ecosystem as delineated by A. W. Kuchler. A heavy forest cover of oak, hickory, and shortleaf pine predominates. A variety of vegetation exists, including an abundance of smaller trees, shrubs, grasses, and herbaceous plants. Wild azaleas occur along the North Fork River. There are small scattered limestone glades.

The principal water feature is the North Fork of the White River, a high quality stream. Blue Spring, McGarr Spring, and Amber Spring are permanent water sources. The natural water in the area is of very high quality. Eighteen manmade wildlife water holes provide a source of water in upland areas where natural water sources are deficient.

The wildlife species are the typical forest-associated species found throughout the Ozarks. This includes white-tailed deer and eastern wild turkey as big game species. Smaller species include fox, raccoon, bobcat, skunk, squirrel and rabbit as well as lesser species. Beaver, muskrat, and other water-associated species can be found along the North Fork River.

Bird life ranges from hawks, owls, turkey vultures, and pileated woodpeckers to the small songbirds. Ruffed grouse inhabit the area. Blue heron, green heron and other water-associated birds are found along the North Fork River.

The North Fork River provides a good stream fishery of large and smallmouth bass and smaller fish. In addition, it contains rainbow and German brown trout.

Canoeing is a popular use.

There are no species on the Federal threatened or endangered list known to reside in the area. Bald eagles have been observed along the North Fork River from time to time.

Evidence of man's activities can be seen in the form of 24 miles of woods roads, wildlife ponds, wildlife food plots and segments of utility right-of-ways.

Paddy Creek Wilderness

The Paddy Creek Wilderness is located in the Salem Plateau region of the Ozarks, with its characteristic rolling topography. Within the area itself, streams cutting through the plateau have exposed sedimentary bedrock formations of sandstone and limestone, creating a dissected, rugged area. Elevation ranges from 1,480 feet to 900 feet. Local relief is about 250 feet.

This area is within the oak-hickory-pine ecosystem as delineated by A. W. Kuchler. The vegetation of the area is predominantly that of a forest community composed of red and white oaks, hickories, and shortleaf pine. There are 109 acres of scattered grass-covered openings and old fields along the creeks.

The area is drained by Big Paddy and Little Paddy Creeks which converge within the Wilderness. They are both perennial streams. There are approximately 53 small springs which feed the two streams.

The wildlife is typical of the Missouri Ozarks. Big game consists of white-tailed deer and wild turkey. Small game animals include squirrels, rabbits, fox, and bobcat. The streams attract water-associated species such as mink and beaver. Several beaver colonies are present.

Bird life ranges from hawks, owls, turkey vultures and pileated woodpeckers to the smaller songbirds.

No federal endangered or threatened species are known to live in the Wilderness. Bald eagles have been sighted from time to time but are not thought to reside in the area. Bats inhabit some of the caves. It has not been determined if they are a threatened or endangered species.

Evidence of man's activities remain in the form of 28 miles of woods road, a segment of utility line and water line, wildlife ponds, wildlife food plots, and fencing. Fourteen miles of the Paddy Creek Trail are within the area, as well as 1.9 miles of a nature trail.

There are 40 acres of private land in one tract within the Wilderness boundary.

Irish Wilderness

This 16,500-acre area in the Ozark Highlands is characterized by a rolling to steep topography with many karst features such as sinkholes, disappearing stream segments, and caves. White's Creek Cave, one of the significant karst features, is a spacious walk-in cavern about 900 feet long, which contains numerous crystalline formations. Elevations in the area range from 900 to 500 feet.

The Wilderness lies in the oak-hickory-pine ecosystem as delineated by A. W. Kuchler. The predominant plant community is oak-hickory forest with scattered shortleaf pine and a great variety of ground vegetation. The few river bottom silt-loam soils have some black walnut and associated bottomland species. The shallow glade soils in the unit support patches of tall grass, prairie plants, and eastern redcedar. The forest vegetation is in a variety of age classes. The majority of the trees are about 30 to 40 years old. In rough areas, a few old growth stands exist.

The Wilderness abuts the Eleven Point National Scenic River corridor for approximately seven miles.

Intermittent streams are characteristic of the unit. White's Creek is the principal stream and is partially intermittent with some permanent pools. Streamflow generally moves into the underground drainage system to emerge at the numerous small springs of the region.

Wildlife species are typical of the Missouri Ozarks with both forest and upland game represented. Big game species include white-tailed deer and the eastern wild turkey. Hunttable populations are present. Gray squirrels are the most popular small game animals. Also, there are rabbits, raccoons, foxes, coyotes, bobcats, and beaver. Lesser species of wildlife such as weasels, and mice fill various niches in the total ecological system. Birdlife ranges from larger birds such as hawks, owls, turkey vultures, and pileated woodpeckers to smaller songbirds.

There are no species on the Federal threatened and endangered list known to reside in the area.

Evidence of man's activities include 41 miles of woods roads, 1.4 miles of utility right-of-ways, the masonry remnants of an old Civilian Conservation Corps camp and railroad grades. The Whites Creek Trail, 19.4 miles in length, traverses the area.

There are 240 acres of private land within the boundary. Right-of-way to this land exists through the Wilderness.

Management Practices and Associated Standards and Guidelines: MA 5.1

1900 Land and Resource Management Planning

Vegetation

Vegetation will be affected by forces of nature with few minor exceptions as identified by these guidelines.

Control of noxious farm weeds by grubbing or with chemicals when they threaten lands outside Wilderness or are spreading within the Wilderness, provided control can be affected without serious adverse impacts on Wilderness values.

No man-caused vegetative manipulation will be permitted beyond the minimum needed for trails and signs. Exceptions are: (1) physical facilities and uses permitted under the establishing legislation, (2) vegetation may be removed to control man-caused wildfires and those natural wildfires and insect and disease outbreaks which threaten to spread beyond the Wilderness, (3) vegetation may be removed when absolutely necessary for rescue operations.

When approved by the Chief of the Forest Service thru a change in, or exception to, National Wilderness Policy, prescribed fire will be used where it can be determined that a certain frequency of fire is essential to aid, maintain, or restore natural plant communities or threatened and endangered plant species. Reference Forest Plan Appendix E.

Existing vegetation communities, for example, legumes, food plots, fescue pastures, or pine plantations, which differ from the natural communities for a particular site shall be allowed to revert to natural vegetation communities.

Only native or naturalized species and natural materials will be used for restoration work.

2100 Environmental Management

Air Quality

Protect Hercules Glades Wilderness as the only Class I air quality area on the Forest.

In cooperation with the State identify and quantify the indicators for Class I air quality to be used as the limits of acceptable change (LAC) for Air Quality Related Values (AQRV). These LAC will then be incorporated into the monitoring of the Hercules Glades Wilderness.

Protect Piney Creek, Devils Backbone, Bell Mountain, Paddy Creek, Irish, and Rock Pile Wildernesses as Class II air quality areas.

Pesticide Use

Use pesticides in Wilderness only when necessary to prevent the loss of significant aspects of the Wilderness or to prevent significant losses to resource values on private or public lands bordering the Wilderness.

Obtain Regional Forester approval for all pesticide applications in Wilderness.

Catastrophic Hazard Response

Accept the effects of flood, wind, pests, erosion, and other natural forces as part of the Wilderness experience and environment except as needed to prevent unnatural loss of the Wilderness resource; unacceptable damage to resources on adjacent lands; or pose a threat to continued use and activities of the area.

2200 Range Management

Grazing will not be permitted.

2300 Recreation Management

Recreation Opportunities

Apply ROS class Primitive to Wilderness.

Within ROS class Primitive, the Wilderness Opportunity Spectrum (WOS) will be used to stratify each Wilderness into units for application of different management actions to preserve a range of Wilderness opportunities and options for users. Reference preceding Wilderness Maps.

Transition WOS will be characterized by the following:

Evidence of past use.

Solitude in proximity to trails interrupted by sometimes frequent party encounters.

Opportunities for challenge, risk, and self reliance available but must be actively sought along trail.

High level of on-site public safety (well defined and marked trails with necessary signing since a low level of woodsmanship skills is assumed).

High degree of public information.

High degree of ranger and public contact.

Facilities to protect resource.

Visual Quality Objective of Retention.

Remote WOS will be characterized by the following:

Evidence of past use.

Solitude in proximity to trail interrupted on occasion by encounters with other parties.

Opportunities for challenge, risk, and self reliance available in off-trail areas and at most times along travel corridors.

Moderate level of on-site public safety.

High degree of public information.

Moderate degree of ranger and public contact.

Facilities to protect resource.

Visual Quality Objectives of Preservation or Retention.

Pristine WOS will be characterized by the following:

Little or no evidence of past use.

Solitude seldom interrupted by contacts with other parties.

Opportunities for challenge, risk and self reliance found throughout area.

Low level of on-site public safety.

Low degree of public information.

Low degree of ranger and public contact.

No facilities.

Visual Quality Objective of Preservation.

The limit of acceptable change concept will be implemented by evaluating the following indicators:

Categories	Indicators	Standards
Trails (Biological)	Soil loss	An increase in excess of 0.3 square foot per year in cross sectional area.
Water (Biological)	Quality reduction	A measurable decrease from current quality.
Visitor Contact (Social)	Exit contact will be made in the spring and fall. A total of six days will be used including a holiday and different weekdays.	20% or more with a negative impression.
Use (Social)	Annual report.	Reach 50% of capacity.

When any of the above standards are reached, an assessment will determine the causes and possible remedies to prevent the loss of Wilderness character.

Motorized equipment and mechanized transport for recreation use is prohibited.

Regulation of use may be necessary where demand exceeds carrying capacity, where needed to prevent site deterioration, or to maintain WOS classification. A permit system may be implemented as a last resort if necessary to hold use within established limits.

The use of self registration is permissible.

No more than 10 individuals shall travel or camp together as one group.

Camping will be permitted anywhere except within 100 feet of a trail, water, cave, rock shelter, other occupied campsite, or other areas as designated that are easily impacted by or subject to concentrated use.

Off-trail horse and mule use is permitted in Wilderness.

Horse and mule use of trails is limited to those designated for such use as shown on the Wilderness maps.

Tying stock directly to live trees is prohibited.

Horses or mules will not be picketed within 100 feet of water or trails.

Limit recreation facilities to trails and signs consistent with Wilderness character, except as otherwise authorized by the act establishing the area.

Camping conveniences such as toilets, tables, fire rings, hitch racks, or corrals, will not be provided.

Trails

The planned trail system for each Wilderness is shown on its map.

Construct tread only if required to delineate trails, protect fragile adjacent resources, correct poor alignment or location, or to route user away from hazardous areas. All of the proposed trails are either existing "woods roads" or have already been constructed. Deviations will be made when justified on a case-by-case basis.

Major trailhead development will be limited to:

Hercules Glades:	Tower Site
Devils Backbone:	North Fork Campground
Irish:	Camp Five Pond Whites Creek Float Camp
Paddy Creek:	Paddy Creek Campground Roby Lake Big Piney Trail Camp

Minor trailhead development will be limited to:

Hercules Glades:	Blair Ridge West Side Access
Piney Creek:	Piney View Tower South Side Access
Devils Backbone:	Northwest Access South Access
Bell Mountain:	A Highway FT-12 Access
Rock Pile Mountain:	Little Grass Mountain

Trailhead facilities will be located outside Wilderness.

At major trailhead locations, minor additional facilities may be developed to provide parking, toilets, camping, picnicking, horse facilities, and signing.

Development at minor trailhead locations will be limited to parking, minimum signing, and minor facilities to accommodate use.

Trail identification will only be provided at termini and road or trail intersections.

Signs primarily for the convenience of visitors such as extensive direction, information, interpretation, and mileage will not be provided.

Signs should be as small as possible using 3/4" or 1" letters and 1 line preferred with 3 lines the maximum. The materials used will not detract from the Wilderness experience.

Utilize off-site techniques for use control such as guides, maps, brochures, or travel logs.

Off-Road Vehicles (ORV)

ORV use will not be permitted.

Cultural Resources

Cultural resources are available for scientific study. Study or management will not normally include any excavation, restoration, or interpretation activities.

Cultural resource values may be stabilized and preserved when these values are compatible with and enhance Wilderness values.

Visual Management

Attain Visual Quality Objective (VQO) of Preservation for each Wilderness.

Man-caused impacts or improvements will meet the Visual Quality Objective of Retention (R).

Visual Absorption Capacity (VAC) assessments for ecological landtype will be utilized in guiding locations of authorized impacts or improvements to minimize environmental impacts and costs.

2400 Timber Management

Silvicultural Systems

Silvicultural systems are not applicable to this management prescription.

Harvesting

Timber is not harvested under this management prescription.

Management Intensity and Utilization

Use growing trees as sources of natural gene pools.

Scions and seed may be collected by methods compatible with Wilderness.

Superior trees will not receive any special treatment which noticeably disturbs the surrounding vegetation or draws undue attention to them.

2500 Water and Soil Resource Management

There will be no investment for soil productivity improvement.

Man-caused accelerated soil erosion will be controlled. The preferred method shall be to remove the cause and let the forces of nature repair the damage. Where this method is not satisfactory measures such as natural appearing site hardening or revegetation with appropriate species shall be used.

In those unusual situations where mechanical equipment is used any soil disturbance which reasonably cannot be expected to heal itself through the forces of nature within three years will be immediately restored.

Design all soil disturbing activities to limit degree of duration of disturbances to the capability of the soil to recover.

Promptly restore areas of disturbed soil using appropriate naturalized plants and materials where necessary to prevent unacceptable adverse impacts on downstream areas and adjacent landowners.

No Forest Service activity shall degrade water quality below that level characteristic of the undisturbed Wilderness.

Where water quality unsuitable for Wilderness enters the area from outside, the situation will be referred to the Missouri Department of Natural Resources for resolution.

2600 Wildlife Habitat Management

Wildlife

In some instances, wildlife species once native to the Wilderness have been forced from their original habitat by the encroachment of man and his activities. To the extent that these factors can be altered or managed within the intent of the Wilderness Act, species no longer part of the Wilderness scene may be reintroduced and managed as a part of the Wilderness resource when recognized by both the Forest Service and the Missouri Department of Conservation.

Wildlife habitat and plant and animal diversity may be manipulated for endangered or threatened species as permitted by legislation.

Fish

The Forest Service role in fish management is habitat protection and coordination with the Missouri Department of Conservation.

Endangered, Threatened, and Sensitive Species

Manage threatened and endangered species as warranted within the provisions of enabling legislation.

Projects involving manipulation of vegetative cover shall be approved by the Chief of the Forest Service on a project-by-project basis. All projects must have, as their objective, enhancement of the Wilderness resource. To qualify for approval habitat manipulation projects must satisfy:

1. The project can be accomplished with complete assurance that damage to watershed or Wilderness values of serious or lasting nature will not develop.
2. There is reasonable assurance that the project will accomplish the desired objectives.
3. The condition to be remedied is a result of man's influence.

4. The project will promote the perpetuation of a threatened or endangered species.

2700 Special Use Management

Utility Transmission Corridors

Corridors for reservoirs, water conservation works, power projects, transmission lines, and other facilities are not permitted.

Other Special Uses

Commercial use will not be permitted.

Special uses will not be permitted, except for access to surrounded private property.

2800 Minerals and Geology

Mineral Exploration

Surface disturbing exploration (including core drilling) is not permitted, subject to valid existing rights.

Mineral Development

Mineral development is not permitted.

4000 Research

Research to investigate scientific values may be conducted providing it is in accordance with the concept of Wilderness.

Where possible, research projects will be directed to areas outside Wilderness where similar sites are available.

5100 Fire Management

Reference Forest-wide Standard and Guidelines 2100 for Air Class I Maintenance Requirements.

The Forest Supervisor must approve the use of motorized equipment, including chain saws and mechanical transport, except tractors.

The Regional Forester must approve the use of tractors for fire suppression.

Evidence and damage resulting from vehicle travel will be obliterated or repaired as a cost of the fire.

The suppression strategy of control will be used for any wildfire with flame lengths in excess of four feet (fire intensity level 3+).

In the Hercules Glades, during either high or low damage period as stated in the Fire Management Action Guide and as modified by silviculturists, the suppression strategy of containment will be used for any wildfire with flame lengths of less than four feet (fire intensity level 0-2).

In other Wildernesses, during the high damage period as stated in the Fire Management Action Guide and as modified by silviculturists, the suppression strategy of containment will be used for any wildfire with flame lengths of less than three feet (fire intensity level 0-1). The suppression strategy of control will be used for any wildfire with flame lengths of three to four feet (fire intensity level 2).

5300 Law Enforcement

Perform law enforcement in a manner that does not detract from the Wilderness experience of others.

5400 Land Ownership

Acquisition of inholdings, outstanding subsurface rights, and adjacent tracts suitable for Wilderness will receive high priority when they become available from willing sellers.

Acquired inholdings and suitable adjacent lands which would provide a more logical boundary will be managed as Wilderness until they are classified as such by Congress.

Individuals and their successors in interest, who own land completely surrounded by Wilderness shall be given rights as may be necessary to ensure adequate access to that land. Adequate access is defined as the combination of routes and modes of travel which will, as determined by the Forest Service, cause the least lasting impact on the Wilderness resource, and at the same time serve the reasonable purposes for which the private land is held or used.

Property boundary lines separating Wilderness and private lands should be surveyed to standard. Line marking will be done in a manner that identifies the location while maintaining a visually pleasing setting.

7300 Buildings and Structures

No buildings or structures will be constructed, except as authorized by the act establishing the Wilderness.

7400 Public Health and Pollution Control Activities

Water Supply

Drinking water sources will not be developed.

Solid Waste

Landfill disposal sites will not be provided.

7700 Transportation System

Roads will not be provided, except as required by the act establishing the Wilderness.

Maintenance of authorized roads will be at the minimum level necessary to protect the resource and accommodate the authorized use.

MANAGEMENT PRESCRIPTION 6.1

This prescription features management of natural vegetative communities and their successional stages under limited investments to provide nonmotorized semi-primitive dispersed recreation.

Purposes of this Prescription:

- (1) To manage natural vegetative communities and their successional stages under limited investment.
- (2) To provide wildlife habitat diversity common to managed natural communities.
- (3) To provide dispersed recreation opportunities emphasizing Semi-Primitive Nonmotorized ROS objectives.
- (4) To provide for low to moderate production of other resources such as timber products, fish and wildlife, and forage where they do not substantially limit natural vegetative community management opportunities or dispersed semi-primitive non-motorized recreation objectives.
- (5) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition:

These forest areas will normally be 2,500 acres or larger. Management areas will be managed to emphasize semi-primitive non-motorized forest conditions. Motorized vehicular access for recreational activities will not be permitted. Access for project activities will be limited to temporary roads and skid trails. All existing roads will be closed subject to existing rights and authorized exceptions and allowed to revert to a natural condition.

Stands of upland central hardwoods will dominate the landscape. Various species of oak will be the chief component, but a variety of other hardwood species will be present, as will mixed hardwood/shortleaf pine, shortleaf pine, eastern redcedar and grasslands. Stand composition will reflect natural vegetative communities for the site and their successional stages. Stand age and size will vary across the landscape so that a natural appearing environment featuring large tree conditions and old growth dominates. Openings created by even-aged timber management will be small in size. These areas will produce low to moderate

amounts of hardwood and softwood sawtimber and other wood products. A moderate population and diversity of wildlife game and non-game species will be present. The opportunity for solitude will be moderate to high. Outputs from range resources would be low to nonexistent due to dependence on natural grassland production.

Emphasis will be on access by foot or horse trails. Facilities, structures, utility corridors, and developments will not be permitted unless subject to existing rights.

Mineral exploration may be permitted but must be coordinated with other surface values. Mineral development requiring surface disturbance in excess of that permitted for the management of surface resources will not be permitted unless the area is reclassified to a less sensitive management prescription. Private rights may be acquired when available to protect particular scenic or ecological areas and if necessary to eliminate conflicting uses.

Management Practices and Associated Standards and Guidelines: MA 6.1

1900 Land and Resource Management Planning

Vegetation

Manage successional stages of natural vegetation community development appropriate to the site. (Reference Forest-wide standards and guidelines 1900 - Vegetative Management).

Existing vegetation communities like legumes, food plots, fescue pastures, or pine plantations, which differ from the natural communities for a particular site shall be allowed to revert to natural vegetation.

Investment in hastening the natural community re-establishment process will not be made unless it provides a specific resource output.

Native species and natural materials will be preferred for restoration work if available in sufficient quantities and capable of accomplishing restoration objectives. If not adequate or available other species and materials may be used.

2200 Range Management

Forage management practices will be designed to enhance the visual, recreational, and wildlife values.

Invest only at low levels for grassland management.

Development of the grazing resource may proceed when natural grasslands occur as a relatively stable community or seral stage.

Graze non-native and off-site native grasses until they revert naturally to woody vegetation or appropriate native grasses or until capital investments have reached a condition requiring a major overhaul or reconstruction.

2300 Recreation Management

Recreation Opportunities

Apply Semi-Primitive Nonmotorized ROS class objective to these areas.

Reduced service management is normally provided for this ROS class.

Investment in recreation management will be held to the minimum necessary to protect the site and meet ROS classification objectives.

Trails

Density for all types of trails should not exceed an average of 1.5 miles per square mile of National Forest System land. An exception is made for the Smith Creek Area, Cedar Creek Ranger District, where the trail density should not exceed an average of 2.4 miles per square mile of National Forest System land.

Motor vehicle trails will not be developed.

Visual Management

All resource management activities will meet, as the minimum, the Visual Quality Objectives displayed below:

Variety Class	VISUAL QUALITY OBJECTIVE						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	R	R	R	PR	PR	PR	PR
Common-Class B	R	PR	PR	PR	M	M	MM
Minimal-Class C	PR	PR	M	M	M	MM	MM

Distance Zones: fg-foreground; mg-middleground; bg-background

VQO: R-Retention; PR-Partial Retention; M-Modification; MM-Maximum Modification

Major earth disturbing activities should normally not be undertaken on Ecological Land Types (ELT) with Visual Absorption Capacity (VAC) ratings identified in Forest-wide standards and guides lower than those shown below:

Variety Class	VISUAL ABSORPTION CAPACITY						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	M	M	M	M	M	ML	ML
Common-Class B	M	M	M	M	ML	L	L
Minimal-Class C	M	M	ML	ML	ML	L	L

VAC: H = High; H-M = High-Moderate; M = Moderate; M-L = Moderate - Low; L = Low

2400 Timber Management

Harvesting

No more than 10% of an individual management area will be prescribed for harvest during the 10 year Plan period.

The uneven-aged silvicultural system will be applied to all lands suitable for timber management in Swan Creek, Smith Creek, Van East Mountain, Lower Rock Creek, Spring Creek, North Fork, and Big Springs Addition sensitive areas. (Approximately 39,040 acres).

The uneven-aged silvicultural system will be applied to stands on Ecological Landtype 7 and 18 to the extent overall management area objectives can be effectively met.

The group selection cutting method with cutting areas from 0.25 to 2 acres in size will be used in applying the uneven-aged system.

Improvement cuts may be made to achieve stand structure objectives when applying the uneven-aged silvicultural system.

Temporary Openings Created by the Application of Even-aged Silviculture

The maximum size of a temporary opening created by even-aged management is 15 acres.

Temporary openings are not permitted within 100 feet of a trail.

Management Intensity and Utilization

Rotation ages, other than for old growth stands, are 80 to 150 years during the pre-regulated condition and 80 to 140 in the regulated condition under evenaged management.

On lands managed under the uneven-aged silvicultural system, emphasis will be on achieving large stem size.

The management area may be used as a natural gene pool source.

Reforestation

Reforestation will be by natural regeneration methods.

Timber Stand Improvement

Release practices will not be applied.

Precommercial thinning practices may be applied within Forest-wide standards and guidelines.

2600 Wildlife Management

Provide habitat for native and naturalized fish and wildlife common to the area within constraints of natural vegetative communities.

New permanent water sources may be developed if water is determined to be a limiting factor in meeting wildlife habitat objectives. New water sources will not be constructed in the 39,000 acres of the seven sensitive areas. Existing waterholes will be maintained.

The horizontal diversity of plant and animal communities will be determined by managed natural communities. Species not found in the natural communities will not be introduced. Unnatural community composition will not be maintained and will be phased out through utilization opportunities and natural processes.

The vertical diversity of plant and animal communities will be determined by the proportion of seral stages in natural community development necessary to meet the habitat objectives.

The following habitat conditions will be sought in the attainment of Management Prescription 6.1 steady state objectives. The objective of each plan period will be to move habitat conditions toward these steady-state objectives as individual management area opportunities permit. Objectives are in terms of percent of National Forest System lands.

Landtype Association: Oak-Pine Breaks	Percent NFSL
Woodland habitat in the 0-9 year age class:	6-10 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	35-45 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	1- 5 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Pine Hills and Plains	Percent NFSL
Woodland habitat in the 0-9 year age class:	6-10 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	35-45 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	35-45 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent

Open and semi-open habitats:	1- 5 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Pine Mountains **Percent NFSL**

Woodland habitat in the 0-9 year age class:	4- 8 percent
Woodland habitat in old growth condition:	15-20 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	45-55 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	5-10 percent
Open and semi-open habitats:	4-10 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Hickory Breaks **Percent NFSL**

Woodland habitat in the 0-9 year age class:	3- 6 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	5-10 percent
Open and semi-open habitats:	4-10 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Hickory Hills and Plains **Percent NFSL**

Woodland habitat in the 0-9 year age class:	5-10 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	5-10 percent
Open and semi-open habitats:	4-10 percent
Permanent water sources per square mile:	1 source

Landtype Association: Cedar Glades Breaks and Hills **Percent NFSL**

Woodland habitat in the 0-9 year age class:	1- 3 percent
Woodland habitat in old growth condition:	15-20 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	20-30 percent
20-30 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitats:	10-20 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Bluestem Plains **Percent NFSL**

Woodland habitat in the 0-9 year age class:	2- 4 percent
Woodland habitat in old growth condition:	5-10 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	25-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	N/A
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub groundcover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitats:	20-30 percent
Permanent water sources per square mile:	1 source

Average per acre (NFSL) woodland habitat cavity tree and snag objectives for Management Prescription 6.1 are:

<u>LTA</u>	<u>DBH Class</u>	<u>Cavity Tree/Ac</u>	<u>Snags/Ac</u>
OPB, H,P (except as noted below)	19 inches plus 11-18 inches 10 inches or less	0.5 3.0 2.0	0.5 3.0 2.0
OHBH, P OPM OPB-White River Natural Division CGBH, OBP	19 inches plus 11-18 inches 10 inches or less	0.5 4.0 2.0	0.5 4.0 2.0

Woodland habitat has a management objective for wildlife food tree species of at least 5 square feet of basal area per acre (NFSL).

Within each clearcut or seedtree unit, retain a minimum of 15 sq. ft. of basal area of reserve trees. Within each shelterwood unit, retain a minimum of 25 sq. ft. of basal area of reserve trees. Group or retain these trees around large snags, large live trees, den trees, and within intermittent drainages to minimize potential for windthrow and provide thermal protection of suitable Indiana bat roost trees.

Habitat Objectives for large openland situations under Management Prescription 6.1 are:

	Large Glades Areas	Small Glades Areas	Large Cool- Season Areas	Small Cool- Season Areas	Cool/ Warm- Season Areas	Large Warm- Season Areas	Small Warm- Season Areas
Percent of area in warm-season grass	100	100	N/A	100	100	100	100
Minimum percent of forbs in total dry weight	15	10	N/A	N/A	N/A	N/A	N/A
Minimum percent of herbaceous vegetation with variable structures	30	100	10	10	10 cs 25 ws	25	25
Percent crown closure of trees in draws and pastures	Retain vegetation that occurs naturally on area.						
Percent crown closure of shrubs in draws and pastures	Retain vegetation that occurs naturally on area.						
Minimum percent of dens and snags to be protected	100	100	100	100	100	100	100

	Large Glades Areas	Small Glades Areas	Large Cool- Season Areas	Small Cool- Season Areas	Cool/ Warm- Season Areas	Large Warm- Season Areas	Small Warm- Season Areas
Distribution of dens and snags	N/A	N/A	1/Ac 20% of area	N/A	1/Ac 20% of area	1/Ac 20% of area	N/A

2700 Special Use Management

Facilities, structures, utility corridors, and developments will not be permitted unless subject to existing rights.

2800 Minerals and Geology

Mineral Exploration

Surface disturbing exploration (including core drilling) will be permitted in most areas.

Residue treatment will meet the visual quality objective for the site.

If existing access routes are not available to the drill site, a temporary access may be constructed to provide minimum width and grade for the drilling rig and pipe trucks. (Reference Forest-wide standards and guidelines in 7700).

Surface excavation at drill sites will be prohibited unless essential to level rig. Upon completion of operations, the site will be returned to as close to the original condition as practical. (Reference Forest-wide standards and guidelines 2800).

Mineral Development

Mineral development requiring surface disturbance greater than that permitted for the management of surface resources is in conflict with the objectives of this management area.

Development requests must be supported by an environmental assessment which evaluates the opportunity to continue to meet semi-primitive nonmotorized demand through reclassification of other areas. Public involvement will be conducted.

Common Variety Minerals

Removal of common variety minerals will generally not be permitted.

5100 Fire Management

Determine the level of fire prevention and suppression by the value at risk within each management area. On a scale of 1 (high) to 5 (low) the value at risk within this management prescription is estimated at "4".

7300 Buildings and Structures

Buildings and structures will not normally be provided in support of resource management objectives.

7400 Public Health and Pollution Control Activities

Solid Waste

Emphasize and promote use of the pack-in/pack-out method of disposal. Landfill disposal sites will not be provided.

7700 Transportation System

Roads

Permanent roads will not be provided except as follows:

*The Loving Ridge Road in the Swan Creek area will be retained as an unimproved road to provide for high water access to adjacent private landowners who will be issued a letter of authorization.

In addition, the road will be opened to public use annually during the rifle deer season.*

A road as shown on the Forest Plan Transportation Map will be retained as an unimproved road providing traditional access to the North Fork area (Steam Mill Hollow).

An unimproved road will be retained to provide traditional river access to the west side of the river in the North Fork area. (See transportation map).

A road will be retained to provide access to the Carroll Cemetery in the Spring Creek area.

These exceptions to road closure, excluding the Loving Ridge Road, will be reevaluated the next plan period (10-15 years to determine if they should remain open).

Existing permanent and unimproved roads will be closed and allowed to revegetate except as noted above.

Revegetation of closed facilities will be accomplished within one year after termination of a contract, lease, or permit for the project.

The transport of Forest resources will be on a road network developed around the use of temporary roads.

Develop temporary roads primarily on in-place routes to a minimum standard so as to exert only a subtle effect on the landscape and to facilitate their subsequent closure.

MANAGEMENT PRESCRIPTION 6.2

This prescription features the management of natural vegetative communities and their successional stages under limited investments to provide motorized semi-primitive dispersed recreation.

Purposes of this Prescription:

- (1) To manage natural vegetative communities and their successional stages under limited investment.
- (2) To provide wildlife habitat diversity common to managed natural communities.
- (3) To provide dispersed recreation opportunities emphasizing Semi-Primitive Motorized ROS objectives.
- (4) To provide for low to moderate production of other resources such as timber products, fish and wildlife, and forage where they do not limit natural vegetative community management opportunities or dispersed semi-primitive recreation objectives.
- (5) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition:

Management areas will normally be 2,500 acres or larger in size and managed to emphasize a semi-primitive motorized environment. Controlled motorized vehicular access for recreational activities will be permitted. System road network density will not exceed an average of one mile per square mile of National Forest System land. Road development will emphasize minimum standards.

Stands of upland central hardwoods will dominate the landscape. Various species of oak will be the chief component, but a variety of other hardwood species will be present, as will mixed hardwood/shortleaf pine, shortleaf pine, eastern red-cedar and grasslands. Stand composition will reflect natural vegetative communities for the sites and their successional stages. Stand age and size will vary across the landscape so that a natural-appearing environment dominates. Openings created by even-aged management will be small in size. The amount of harvest per plan period will be limited but exceeds that found in semi-primitive non-motorized management areas.

These areas will produce low to moderate amounts of hardwood and softwood sawtimber and other wood products. A moderate diversity of wildlife game and non-game animals will be present. The opportunity for solitude will be moderate to high. Outputs from range resources would be low and dependent on natural grassland production.

Facilities, structures, utility corridors and developments will usually not be permitted unless the impacted lands have been identified for potential exchange. If permitted, new facilities will be at the minimum design standard appropriate and will meet visual quality objectives of the site.

Mineral exploration may be permitted but must be coordinated with surface resource values. Mineral development requiring surface disturbance in excess of that permitted for the management of surface resources will not be permitted unless the area is reclassified to a less sensitive management prescription. Common variety minerals may be utilized. Private rights may be acquired when available to protect particular scenic areas and to eliminate conflicting uses.

Management Practices and Associated Standards and Guidelines: MA 6.2

1900 Land and Resource Management Planning

Vegetation

Manage successional stages of natural vegetation community development appropriate to the site. (Reference Forest-wide standards and guidelines (1900 - Vegetative Management)).

Existing vegetation communities, for example legumes, food plots, fescue pastures, or pine plantations, which differ from the natural communities for a particular site, shall be allowed to revert to natural vegetation.

Investment in hastening the natural community re-establishment process will not be made unless it provides a specific resource output.

Native species and natural materials will be preferred for restoration work if available in sufficient quantities and capable of accomplishing restoration objectives. If not adequate or available, other species and materials may be used.

2200 Range Management

Forage management practices will be designed to enhance the visual, recreational, and wildlife values.

Invest only at low levels for grassland management.

Development of the grazing resource may proceed when natural grasslands occur as a relatively stable community or seral stage.

Graze non-native and off-site native grasses until they revert naturally to woody vegetation or appropriate native grasses or until capital investments have reached a condition requiring a major overhaul or reconstruction.

2300 Recreation Management

Recreation Opportunities

Apply Semi-Primitive Motorized ROS class objective to these areas.

Reduced service management is normally provided for this ROS class.

Investment in recreation management will be held to the minimum necessary to protect the site and meet ROS classification objectives.

Trails

Density for all types of trails should not exceed an average of 1.5 miles per square mile of National Forest System land.

Visual Management

All resource management activities will meet, as the minimum, the Visual Quality Objectives displayed below:

Variety Class	VISUAL QUALITY OBJECTIVE						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	R	R	R	PR	PR	PR	PR
Common-Class B	R	PR	PR	PR	M	M	MM
Minimal-Class C	PR	PR	M	M	M	MM	MM

Distance Zones: fg-foreground; mg-middleground; bg-background

VQO: R-Retention; PR-Partial Retention; M-Modification; MM-Maximum Modification

Major earth disturbing activities should normally not be undertaken on Ecological Land Types (ELT) with Visual Absorption Capacity (VAC) ratings identified in Forest-wide standards and guides lower than those shown below:

Variety Class	VISUAL ABSORPTION CAPACITY						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	M	M	M	M	M	ML	ML
Common-Class B	M	M	M	M	ML	L	L
Minimal-Class C	M	M	ML	ML	ML	L	L

VAC: H = High; H-M = High-Moderate; M = Moderate; M-L = Moderate-Low; L = Low

2400 Timber Management

Harvesting

No more than 20% of an individual management area will be prescribed for harvest during the 10 year Plan period.

Temporary Openings Created by the Application of Even-aged Silviculture

The maximum size of a temporary opening created by even-aged management is 15 acres.

Temporary openings are not permitted within 100 feet of trails.

Management Intensity and Utilization

Rotation ages, other than for old growth stands, are 80 to 150 years during the pre-regulated condition and 80 to 140 in the regulated condition.

The management area may be used as a natural gene pool source.

Reforestation

Reforestation will be by natural regeneration methods.

Timber Stand Improvement

Release practices will not be applied.

Precommercial thinning practices may be applied within Forest-wide standards and guidelines.

2600 Wildlife Management

Provide habitat for native and naturalized fish and wildlife common to the area within constraints of natural vegetative communities.

New permanent water sources will be developed if water is determined to be a limiting factor in meeting wildlife habitat objectives. Existing waterholes will be maintained.

The horizontal diversity of plant and animal communities will be determined by managed natural communities. Species not found in the natural communities will not be introduced. Unnatural community composition will not be maintained and will be phased out through utilization opportunities and natural processes.

The vertical diversity of plant and animal communities will be determined by the proportion of seral stages in natural community development necessary to meet the habitat objectives.

The following habitat conditions will be sought in the attainment of Management Prescription 6.2 steady state objectives. The objective of each plan period will be to move habitat conditions toward those steady state objectives as individual management area opportunities permit. Objectives are in terms of percent of National Forest System lands.

Landtype Association: Oak-Pine Breaks	Percent NFSL
Woodland habitat in the 0-9 year age class:	6-15 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	35-45 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	1- 5 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Pine Hills and Plains	Percent NFSL
Woodland habitat in the 0-9 year age class:	6-15 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	35-45 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	35-45 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	10-15 percent
Open and semi-open habitats:	1- 5 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Pine Mountains	Percent NFSL
Woodland habitat in the 0-9 year age class:	4- 8 percent
Woodland habitat in old growth condition:	15-20 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	45-55 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	5-10 percent
Open and semi-open habitats:	4-10 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Hickory Breaks	Percent NFSL
Woodland habitat in the 0-9 year age class:	3- 6 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	5-10 percent
Open and semi-open habitats:	4-10 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Hickory Hills and Plains	Percent NFSL
Woodland habitat in the 0-9 year age class:	5-15 percent
Woodland habitat in old growth condition:	10-15 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	25-35 percent
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub groundcover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	5-10 percent
Open and semi-open habitats:	4-10 percent
Permanent water sources per square mile:	1 source

Landtype Association: Cedar Glades Breaks and Hills	Percent NFSL
Woodland habitat in the 0-9 year age class:	1- 3 percent
Woodland habitat in old growth condition:	15-20 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	40-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	20-30 percent
20-30 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitats:	10-20 percent
Permanent water sources per square mile:	1 source

Landtype Association: Oak-Bluestem Plains**Percent NFSL**

Woodland habitat in the 0-9 year age class:	2- 4 percent
Woodland habitat in old growth condition:	5-10 percent
Woodland habitat in Oak and Oak-Pine types over 50 years of age:	25-50 percent
Woodland habitats in pole and sawtimber size classes with crown closure over 80 percent:	N/A
25-35 percent of the sawtimber component* of the woodland habitat in Oak, Oak-Pine, and Pine exhibits a condition of 20-30 percent forbs, grass and shrub ground cover.	*
Woodland habitat in Oak type over 50 years of age with dense understory:	N/A
Open and semi-open habitats:	20-30 percent
Permanent water sources per square mile:	1 source

Average per acre (NFSL) woodland habitat cavity tree and snag objectives for Management Prescription 6.2 by landtype associations are:

<u>LTA</u>	<u>DBH Class</u>	<u>Cavity Tree/Ac</u>	<u>Snags/Ac</u>
OPB, H, P (exception noted below)	19 inches plus 11-18 inches 10 inches or less	0.5 3.0 2.0	0.5 3.0 2.0
OHB,H, P OPM OPB-White River Natural Division CGB,H OBP CGB,H, and OBP	19 inches plus 11-18 inches 10 inches or less	0.5 4.0 2.0	0.5 4.0 2.0

Woodland habitat has a management objective for wildlife food tree species of at least 5 square feet of basal area per acre (NFSL).

Within each clearcut or seedtree unit, retain a minimum of 15 sq. ft. of basal area of reserve trees. Within each shelterwood unit, retain a minimum of 25 sq. ft. of basal area of reserve trees. Group or retain these trees around large snags, large live trees, den trees, and within intermittent drainages to minimize potential for windthrow and provide thermal protection of suitable Indiana bat roost trees.

Habitat objectives for large openland situations under Management Prescription 6.2 are:

	Large Glades Areas	Small Glades Areas	Large Cool- Season Areas	Small Cool- Season Areas	Cool/ Warm- Season Areas	Large Warm- Season Areas	Small Warm- Season Areas
Percent of area in warm-season grass	100	100	100	100	100	100	100
Minimum percent of forbs in total dry weight	15	10	N/A	N/A	N/A	N/A	N/A
Minimum percent of herbaceous vegetation with variable structures	30	100	10	10	10 cs 25 ws	25	25
Percent crown closure of trees in draws and pastures	Retain vegetation that occurs naturally on area.						
Percent crown closure of shrubs in draws and pastures	Retain vegetation that occurs naturally on area.						
Minimum percent of dens and snags to be protected	100	100	100	100	100	100	100
Distribution of dens and snags	N/A	N/A	1/ac 20% of area	N/A	1/ac 20% of area	1/ac 20% of area	N/A

2700 Special Uses

Allow the use of National Forest System lands only when no other alternative is available.

2800 Minerals and Geology

Mineral Exploration

Surface disturbing exploration (including core drilling) will be permitted in most areas.

Residue treatment will meet the visual quality objective for the site.

If existing access routes are not available to the drill site, a temporary access may be constructed to provide minimum width and grade for the drilling rig and pipe trucks. (Reference Forest-wide standards and guidelines 7700).

Surface excavation at drill sites will be prohibited unless essential to level rig. Upon completion of operation, the site will be returned to as close to the original condition as practical. (Reference Forest-wide standards and guidelines 2800).

Mineral Development

Mineral development requiring surface disturbance greater than that permitted for management of surface resources is in conflict with objectives of this management area.

A portion of the allocation to Management Prescription 6.2 equal to that which exceeds the acreage needed for semi-primitive motorized recreation demand satisfaction (26,580 acres) may be reclassified to permit mineral development without jeopardizing Forest Plan direction. This reclassification decision must be supported by an environmental assessment which identifies adequate protection of surface resources in the presence of mining.

Common Variety Minerals

Permit removal of common variety minerals from isolated, well-screened locations.

5100 Fire Management

Determine the level of fire prevention and suppression by the value at risk within each management area. On a scale of 1 (high) to 5 (low) the value at risk within this management prescription is estimated at "4".

7300 Buildings and Structures

Buildings and structures may be provided to support resource management objectives.

7400 Public Health and Pollution Control Activities

Solid Waste

Emphasize and promote use of the pack-in/pack-out method of disposal. Landfill disposal sites will not be provided.

7700 Transportation Systems

Provide on the average up to 1 mile of permanent roads per square mile of National Forest System land. Unimproved woods road mileage will be included in density objectives.

Limit public motorized use of the permanent road network only as needed to meet specific management area needs.

MANAGEMENT PRESCRIPTION 6.3

This prescription provides temporary management for a variety of areas that have potential for "special area" designation other than Wilderness. These areas reflect public issues or management concerns for the protection of unusual environmental, recreational, cultural, and historical resources and for areas valuable for scientific or educational studies. Candidate areas for National River status are also included.

Purposes of this Prescription:

- (1) To provide temporary management direction for these areas until a designation or rejection decision is made.
- (2) To identify opportunities for low levels of resource outputs where they do not jeopardize the "special area's" potential for designation.
- (3) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition:

Candidates for Research Natural Areas, Natural History Areas, Cultural Resource Areas, and National Rivers are assigned to this management area until their classification is resolved. Individual areas will vary in size but with the exception of candidates for National Rivers will normally be less than 100 acres. Plant and animal communities associated with these areas may be uncommon because of their limited occurrence on the total landscape. Vegetation management is directed by the need to retain the unique attributes of the candidate areas until a classification decision is made. Management opportunities will vary on a case-by-case basis, but will always be based on the needs for protection of the area's integrity. Unless compatible with this protection, motorized use, facility development and management activities will not be permitted. If facility development is unavoidable it will be done to the minimum necessary to reach the objective and designed so as not to preclude the area's designation. Interaction between users will vary from high to low. Public use may be constrained if it jeopardizes classification potential. These areas will not normally be available for mineral prospecting requiring surface disruption. Candidates for National River status will be managed under the provisions for National Scenic River classification.

CANDIDATE AREAS FOR OTHER THAN NATIONAL RIVER CLASSIFICATION

1900 Land and Resource Management Planning

Candidate areas currently identified or recognized in the future will be temporarily maintained under Management Area 6.3 status until classified to another Management Area.

Appendix I of the Forest Plan will be updated annually to identify candidates and their status.

As of January 1, 1986, the following candidate areas are recognized:

DISTRICT	COUNTY	AREA NAME
Ava	Taney	Beaver Creek Bluff
	Taney	Zoo Cave
	Ozark	Bat Cave
Cassville	Barry	Wooley Creek Watershed
	Barry	Rockhouse Creek Slopes
	Barry	Rock Creek
	Barry	Wolf Pen Gap Glade
	Stone	Devil's Hole Ashe Juniper Bluff
Cedar Creek	Callaway	Millers Creek
	Callaway	Fern Glen On Dry Branch
Doniphan	Ripley	Bluff Above Slough
	Ripley	U.S.F.S. River Camp
	Ripley	Tucker Bay Spring
Fredericktown	Iron	Patterson Mountain - Marble Creek Shut-In
	Madison	Matthews Mountain
	Madison	Grounder Creek Bog
	Ste. Genevieve	Bidwell Creek Bog
Houston	Laclede	Devil's Den Table Bluff
	Laclede	Upland Sinkhole Pond
	Pulaski	Roubidoux Creek
	Texas	Paddy Creek
	Texas	Big Piney Bluff
	Texas	Sweet Potato Cave
Potosi	Texas	Small Cave
	Iron	Red Bluff Area
	Iron	Cub Creek Shut-In
	Iron	Big River Maple Bottoms
	Iron	Johnson Mountain
	Washington	Pigeon Roost Pond
Washington	Cedar Creek Tributaries	

DISTRICT	COUNTY	AREA NAME
Rolla	Phelps	King Sink
	Pulaski	Roubidoux Creek
	Pulaski	Boiling Spring/Onyx Cave
Salem	Crawford	Lower Narrows Hardwood
	Dent	Oak Pine Forest
	Dent	Scotia and Little Scotia Ponds
	Iron	Crooked Creek
	Reynolds	Reeds Spring
	Shannon	Wet Meadow
Van Buren	Shannon	Loggers Lake
	Carter	Midco Region
	Carter	Big Barren Creek
	Carter	Bottomland Forest
	Carter	Blue Spring
Willow Springs	Carter	Panther Spring
	Douglas	Holy Cliff
	Douglas	Topaz Spring
	Douglas	Bigtooth Aspen
	Howell	Galloway Spring
	Ozark	Shortleaf Pine Stand
	Ozark	Bat Spring Cave
	Ozark	Blue Spring and Caves
Ozark	Bat Cave	
Winona	Oregon	Scarlet Oak Stand

All inventoried caves will be considered management areas 6.3 until classified. (See Forest-wide standards and guidelines 1900 - Special Areas)

Management Prescription 8.1 lists several currently classified areas which could qualify for other classifications. These are also considered candidate areas, but will be managed under their current classification until evaluated. (See Management Prescription 8.1 and Forest Plan Appendix I).

The objective will be to resolve the status of areas on the inventory during the Plan period.

Nomination and designation procedures for federally recognized sites are identified in FSM 7731.31 National Trails, FSM 2361 Cultural Resources, FSM 2362 Natural History Resources, FSM 2672 Threatened and Endangered Species, FSM 4060 Research Natural Areas.

Areas will first be evaluated for National level classification.

Areas not found to be nationally significant will be evaluated for State significance as per Memorandum of Agreement with the State of Missouri covering natural areas and other coordinating agreements covering rare and sensitive plant and animal species (State List).

If sufficiently important, Forest level recognition could be applied to areas not suitable for State or National classification.

As part of the formal recognition process, site objectives and/or recovery plans will be developed for each candidate area.

2300 Recreation Management

Visual Management

ROS Classification Semi-Primitive Motorized will be applied.

All resource management activities will meet, as the minimum, the Visual Quality Objectives displayed below:

Variety Class	VISUAL QUALITY OBJECTIVE						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	R	R	PR	PR	PR	M	M
Common-Class B	R	PR	PR	PR	M	M	MM
Minimal-Class C	PR	PR	M	M	M	MM	MM

Distance Zones: fg-foreground; mg-middleground; bg-background

VQO: R-Retention; PR-Partial Retention; M-Modification; MM-Maximum Modification

Areas being studied for National designation will be managed to meet the Visual Quality Objectives of Retention or Partial Retention to maintain the current characteristic landscape.

Major earth disturbing activities should normally not be undertaken on Ecological Land Types (ELT) with Visual Absorption Capacity (VAC) ratings identified by Forest-wide standards and guides lower than those shown below:

Variety Class	VISUAL ABSORPTION CAPACITY						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	M	M	M	M	M	ML	ML
Common-Class B	M	M	M	M	ML	L	L
Minimal-Class C	M	M	ML	ML	ML	L	L

VAC: H = High; H-M = High-Moderate; M = Moderate; M-L = Moderate-Low; L = Low

2800 Minerals and Geology

Mineral Exploration

Surface disturbing exploration (including core drilling) will not be considered prior to analysis and classification to other Management Prescriptions.

5100 Fire Management

Value at risk will be considered a "1" on scale of 1 (high) to 5 (low). The fire suppression strategy will be control.

NATIONAL RIVER CANDIDATE AREAS

1900 Land and Resource Management Planning

Scenic and Recreation Segments

The Forest Service will work with State and other Federal agencies, organizations and individuals to determine when a river study(s) should be initiated.

Rivers identified as eligible for inclusion in the National Wild and Scenic Rivers System that are located within the Forest boundaries and their best potential classification by segment are:

<u>NRI River</u>	<u>Best Potential Classification</u>	<u>Recommended Segment</u>	<u>Segment Reach Description</u>	<u>Length (Miles)</u>
Gasconade	Scenic	1	State Highway 0 to Ozark Spring	66
Big Piney	Scenic	1	State Highway 17 Sec. 31, T35N, R10W	52
	Exclude	2	Southern to Northern boundaries of Ft. Leonard Wood	9.5
	Scenic	3	North boundary of Ft. Leonard Wood to Sec. 31, T36W, R10W	11
	Exclude	4	Sec. 31, T36W, R10W to Gasconade River	9
Cedar Creek	Recreation	1	Entire Creek within Mark Twain N.F. proclamation boundary	29

<u>NRI River</u>	<u>Best Potential Classification</u>	<u>Recommended Segment</u>	<u>Segment Reach Description</u>	<u>Length (Miles)</u>
Courtois Creek	Recreation	1	Entire Creek within Mark Twain N.F. proclamation boundary	18
Huzzah Creek	Recreation	1	Entire Creek within Mark Twain N.F. proclamation boundary	28
North Fork	Recreation	1	Mile Post 1 to 18 from North District proclamation	18
White River	Recreation	2	Mile Post 18 to 30	12
St. Francis	Scenic	1	Entire Creek between North and South proclamation boundary	17

Until designation decisions are made, National Forest System lands associated with eligible river corridors will be managed to perpetuate their current condition. Management activities may enhance conditions but will not reduce the present characteristics below the standards for the best potential classification assigned.

The protection area is normally defined as National Forest System lands extending 0.25 mile in width from the bank(s) of the river.

Management practices including construction of minor structures for such purposes as improvements of fish and game habitat; river access; grazing; protection from fire, insects or disease; and rehabilitation or stabilization of damaged resources are permitted, provided the area will remain natural appearing and practices or structures will harmonize with the environment.

When lands meeting the definition for minimum level management are encountered within eligible river corridors, they will be managed under Management Area 9.1 standards to the extent river eligibility and best potential classification are not jeopardized.

A suitability study will be completed and its findings the basis for Forest Service approval or disapproval of developmental proposals that could disqualify National Forest systems lands within inventory river corridors for National River consideration.

2200 Range Management

Scenic and Recreation Segments

Permit range management practices to support grazing and forage utilization.

Current forage capacity and level of facility development may be maintained.

Inplace facilities may be reconstructed to the current design level or one which enhances natural appearance of the area.

Conversion of non-native grasses to native grasses is permitted.

2300 Recreation Management

Scenic Segments

ROS classification Semi-Primitive Motorized will be applied.

Construction of major public use areas is prohibited; simple recreation facilities to protect the values of the river and provide for the safety and convenience of the users are permitted in keeping with a natural setting.

Substantial additions to existing improvements or structures are prohibited.

Recreation Segments

ROS classification Roaded Natural will be applied.

Recreation facilities to protect the values of the river area while facilitating public use are permitted in keeping with a natural setting.

Additions to existing improvements and structures are permitted.

Visual Management

Scenic Segments

A Visual Quality Objective of Retention or Partial Retention is assigned to maintain current characteristic landscape.

Recreation Segments

A visual Quality Objective of Retention or Partial Retention is assigned except for specific sites developed to accommodate public use which shall not drop below a VQO of modification for the impacted area.

2400 Timber Management

Scenic and Recreation Segments

Harvesting

River corridors will be managed under the uneven-aged silvicultural system to the extent timber management is desirable.

Regeneration cuts will be limited to the single tree selection method.

Improvement cuts may be implemented.

Timber management practices will not be visually apparent to over water travelers or users of developed facilities.

Harvesting activities in the river corridor will be confined to the period of October 1 to March 31.

2600 Wildlife Management

Scenic and Recreation Segments

Investment may be made in wildlife habitat management to support both river corridor and adjacent management area objectives to the extent National River Candidacy is not put in jeopardy.

Vegetation management prescriptions to improve habitat will be limited to:

- 1) The reestablishment, perpetuation and enhancements of natural vegetation communities.
- 2) Maintenance of present habitat conditions.
- 3) Enhancement by use of non-native or non natural vegetative communities having easily reversible impacts, i.e., food plots.

2700 Special Uses Management

Scenic and Recreation Segments

No new special uses, authorizing the construction of buildings or structures, will be issued unless there is no reasonable alternative.

New permits for compatible uses such as fences, grazing, hay cutting, or temporary roads may be issued.

Existing permits will be modified to insure existing structures and improvements are maintained in a manner compatible with the river environment.

Redesign and reconstruction of existing special use building and structures is permitted to meet public safety objectives.

2800 Minerals and Geology

Scenic and Recreation Segments

Mineral Exploration

Surface disturbing exploration (including core drilling) will require constraints to protect the character of rivers.

Mineral exploration activities will not be visually apparent to over water travelers or users of developed facilities.

Mineral exploration activities will be confined to the period of October 1 to March 31.

Mineral Development

Mineral development may be permitted on a case-by-case basis when supported by an environmental analysis identifying the Scenic River option is not precluded.

Mineral development leases involving National Forest lands within one-fourth mile of either bank of candidate rivers shall contain a stipulation that prohibits surface disturbance or occupancy of said lands for development and extraction of federally-owned minerals.

Surface coal mining is prohibited.

4000 Research

Scenic and Recreation Segments

Research Natural Areas found in the Mark Twain National Forest ecology that may be registered in the nation-wide system are:

- Type 40 - Post oak-blackjack oak
- Type 46 - Eastern redcedar.
- Type 50 - Black locust.
- Type 52 - White oak-black oak-northern red oak.
- Type 53 - White oak.
- Type 61 - River birch-sycamore.
- Type 110 - Black oak.

5100 Fire Management

Scenic and Recreation Segments

Value at risk will be considered a "1" on a scale of 1 (high) to 5 (low). Fire suppression strategy is Control.

7400 Public Health and Pollution Control Activities

Scenic and Recreation Segments

Solid Waste

Landfill disposal sites will not be allowed.

7500 Water Storage and Transmission Management

Scenic and Recreation Segments

No development of hydroelectric power facilities is allowed.

No new dams, diversion works or other structures will be allowed within portions of the waterway under National Forest jurisdiction.

7700 Transportation System

Scenic and Recreation Segments

Construction and reconstruction of roads and bridges are prohibited except for uses that are permitted by the Wild and Scenic River Act and as needed to meet public safety objectives.

Authorized roads are identified on the Forest Plan Transportation Map. They will be maintained, but not enhanced beyond the road standards identified.

Road construction not associated with recreation development will be limited to temporary roads at the minimum development level for resource management needs.

Temporary roads will avoid paralleling the river.

***MANAGEMENT PRESCRIPTION 7.1**

Purpose of This Prescription

- (1) To emphasize recreation activities such as camping, picnicking, group activities, and other
- (2) recreation opportunities occurring in the following developed recreation areas: Council Bluff, Sutton Bluff, Big Bay, Shell Knob, Watercress, Markham Springs, Pinewoods, Cobb Ridge, Pine Ridge, Lane Spring, Marble Creek, Loggers Lake, and North Fork.
- (3) Recognize existing recreation facilities and the future need to provide sites for highly developed recreation intended to serve various user groups.
- (4) To encourage development of interpretation and environmental education opportunities.
- (5) To satisfy the management requirements of 36 CFR 219.27

Desired Future Forest Condition:

Each recreation area will have motorized access and have a moderate to high level of developed recreation facilities and structures, which may dominate the landscape. These areas are characterized by a substantially modified natural environment. Resource modification and utilization will be primarily to enhance specific recreational activities and to maintain vegetative cover and soil. Surrounding areas provide complementary recreation opportunities such as hiking, boating, fishing and/or trail riding. These recreation areas will be characterized by the Rural ROS classification.

The areas will vary in size and ownership patterns. The recreation emphasis will continue and the Forest will meet public demand for a variety of developed recreation opportunities. Design, buildings, materials, and placement of facilities will be in harmony with the environment. Developed recreation facilities are safe for visitors and may be accessible to visitors with disabilities in accordance with Section 504 of the Rehabilitation Act of 1973 (Section 504). Areas remain open for use on either a regular seasonal or year-round basis, as determined by Forest policy.

Cleaning, mowing and other needed maintenance is done on a regular and frequent basis. Facilities that are worn or vandalized are replaced or rehabilitated as quickly as funding becomes available. Maintenance and rehabilitation are prompt and thorough.

Utility corridors and other special uses may be present, provided they are compatible with the character of the area. The vegetation will be managed to ensure that the long-term viability, safety, and attractiveness of the area continues throughout the anticipated life of the development. Large number of users will be present; human sights and sounds evident, and a high degree of interaction between users will be expected.

Interpretation emphasizes environmental education, heritage resources and National Forest management.

Depending upon the site and level of development, a wide variety of quality outdoor recreation activities are available either in the developed area or immediately adjacent. These activities will be compatible with the forested environment.

Management Practices and Associated Standards and Guidelines: MA 7.1

1600 PUBLIC INVOLVEMENT PROGRAMS

Most environmental education and interpretive opportunities will originate at facilities found in this Management Prescription or from District Offices. Orientation and informational signs, brochures, and maps will be available in recreation areas. Campground hosts may be present in campgrounds.

1800 HUMAN RESOURCE PROGRAMS

Capitalize on these programs to enhance stewardship of the recreation area developments, maintenance of trails, and program management through partnerships, cooperative programs, volunteer agreements and other methods.

1900 LAND AND RESOURCE MANAGEMENT

Vegetation

The vegetation management plan for the area will specify the proportions, size, and species. Vegetation will be managed as needed to meet wildlife viewing, recreation, safety, and visual quality objectives.

Native species and natural materials will be preferred for restoration if available in sufficient quantities and capable of accomplishing restoration objectives. If not adequate or available other species and materials may be used.

Only healthy, sound trees will be retained. Tree retention will be based on consideration of recreation benefits and safety of visitors. A conifer component in hardwood ecosystems will be encouraged for diversity and color contrast. The objective is large vegetation, but with minimum risk for hazards or blow down.

2100 ENVIRONMENTAL MANAGEMENT

Herbicides and pesticides will be used only to reduce hazards to the public. Application will primarily be in the off-season or during periods of low visitor use.

2200 RANGE

Forage management practices (excluding grazing), when applied in this Management Prescription, will be designed to enhance recreation values and be compatible with the recreation use.

2300 RECREATION MANAGEMENT

Recreation Opportunities

Location of recreational developments will be determined with priority given to correcting health and safety problems, protecting the environment, complementing prescribed recreation opportunities, and meeting public demand.

Developments should be designed for a single gated entry/exit road which affords control of access and provides greater visitor safety.

Public motor vehicle use will be restricted to designated roads and trails, unless otherwise provided for by law, regulation, or special area management objectives for each area.

As much as possible, sites should be pedestrian oriented. Pathway access from one facility to another should be made as convenient as possible. The intent is to make walking more reasonable and desirable than driving.

If public health and safety cannot be reasonably ensured, recreation facilities and sites will be closed.

Recreational developments may be temporarily closed to allow for site rehabilitation.

Details of operation and maintenance work are found in area operation and maintenance plans.

Trails

Trail density may vary depending on the specific needs of an area. Trails may be closed or relocated to protect resources or reduce maintenance. Some trails will be highly developed with artificially hardened surfaces to meet requirements of Section 504.

Emphasis will be for loop trails or trailheads for longer trail systems.

All trails will be signed to ensure customers are aware of the type of use allowed: foot travel, pack or stock, mountain bicycles, motorized use or other types of conveyance.

ATV/OHV Use

ATV/OHV use is prohibited in this area except for the following:

1. Use on designated ATV/OHV travelways which provide access to and from developed sites and parking areas.
2. Administrative use, access by emergency vehicles or use authorized by permit of contract.
3. On designated trails or in accordance with State or County law and regulations.

Visual Management

All resource management activities will meet, as the minimum, the Scenic Integrity Objectives displayed below:

	SCENIC INTEGRITY OBJECTIVE Concern Level & Distance Zone						
	Least Sensitive			Most Sensitive Sensitive			
Scenic Attractiveness Class	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive - Class A	H	H	M	M	M	L	L
Common - Class B	H	M	M	M	L	L	VL
Indistinctive - Class C	M	M	L	L	L	VL	VL

Distance Zones: fg-foreground; mg-middleground; bg-background

SIO: H-High; M-Medium; L-Low; VL-Very Low

Totally remove or chip and scatter residues generated within the near foreground (Nfg) zone.

Vistas

Vistas may be created and maintained as designated in the site vegetation management plan.

Heritage Resources

Emphasize interpretation and protection of heritage resources to enhance recreation opportunities.

During area rehabilitation, maintenance, reconstruction, and construction follow the Forest-wide Standards and Guides for Heritage Resource Management.

2400 TIMBER MANAGEMENT

The objectives of timber stand improvement and reforestation will be to create healthy stands. Practices will be guided by a site specific vegetation management plan.

The management of woody plants will be limited to their botanical range on sites where they may be naturally encountered, except as necessary for restoration or recreation site landscaping (FP pages IV-13 to IV-17).

Uneven-aged management will be the primary silvicultural system. Even-aged management may be used for site development or vista creation. This management area is not included in the timber base. Any timber management activities will occur during off-season or when facilities are closed to public use, normally between November 1 and April 1.

2500 WATER AND SOIL RESOURCES MANAGEMENT

Improve or maintain water quality/quantity in a condition suitable for water contact activities, fishing, and drinking with treatment.

Soil erosion and compaction are potential problems. Provide erosion control and minimize soil compaction by regulating use and by design, hardening, and site rehabilitation. Integrate soils information into site selection and design of new facilities and during rehabilitation. See also Forest-wide Standards and Guides page IV-54.

Construction or rehabilitation of structures and facilities will preserve the beneficial values of floodplains and wetlands, protect public safety, and be cost efficient.

2700 SPECIAL USES

Routinely permit only those facilities that are required to serve recreational or administrative needs. Exceptions will be considered on an individual basis. Encourage development of special uses that will enhance the availability of quality recreation opportunities within the area, in response to public service needs.

2800 MINERALS AND GEOLOGY

Mineral Exploration, Development, and Leasing that does not disturb the land surface will require constraints to protect the character of the recreation sites. Specific concerns are hours of operation, season of operation, noise levels, protection of facilities, public safety, and scenic management objectives of the area. Surface mining is prohibited.

5100 FIRE MANAGEMENT

Value at risk will be considered a "2" on a scale of 1 (high) to 5 (low). Fire suppression strategy is Control.

Prescribed burning is permitted as a tool to meet objectives defined in the site-specific vegetation plan such as oak regeneration, wildlife habitat management, maintenance of fire dependent plant communities and so on.

7300 BUILDINGS AND STRUCTURES

Buildings and structures may be provided to support resource management objectives.

7400 PUBLIC HEALTH AND POLLUTION CONTROL ACTIVITIES

Water Supply

Drinking water will normally be available at these sites during peak operating seasons, and may be available during shoulder seasons. Water supply will meet Federal and State regulations and be protected to ensure its continued quality.

Liquid Waste

If treatment facilities are provided they will be operated and maintained to Federal and State standards.

7500 DAMS

Ensure that water impoundments and transmission facilities are safe, sanitary, and adequate.

7700 TRANSPORTATION SYSTEM

A transportation system will be planned as an integral part of the recreation development, and be designed, constructed, and maintained to safely and comfortably accommodate both specialized recreation vehicles and associated service vehicles.

Public motorized access is intended during the recreation season.

Roads may be closed off-season to protect facilities and/or reduce road maintenance.*

MANAGEMENT PRESCRIPTION 8.1

This prescription describes a variety of designated "special areas" other than Wilderness. They exist for the protection of unusual environmental, recreational, cultural, or historical resources, and for scientific or educational studies. New areas may be added to this prescription as they are evaluated.

Purposes of this Prescription:

- (1) To protect areas of special scientific, biological, historical, geological, scenic, recreational, and educational significance.
- (2) To provide low to moderate production of other resources such as timber products, fish and wildlife, recreation, and forage where they are compatible with "special area" objective.
- (3) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition:

These management areas contain exceptional ecological, geological or other features of scientific, educational, scenic, or historical values other than Wilderness that have already been officially classified. This management prescription will insure the continued protection of these unusual features of the landscape.

Such areas include designated Experimental Forests, Research Natural Areas, Natural History Areas, Heritage Resource Areas, National Trails, National Rivers, and the Greer Spring Special Management Area. Individual areas could be any size but will normally be less than 100 acres with the exception of National Rivers, the Experimental Forest, Lower Current River, and Greer Spring Special Management Area. Many areas are only a few acres in size.

Plant and animal communities associated with these areas are often uncommon because they occur only in these limited portions of the total landscape. Vegetation management will be directed by the specific management objective for each area. Unless compatible with area objectives, management activities, facility development or motorized use will not be permitted. Interaction between users will vary from high to low, based on the area objectives. These areas will normally be protected from mineral prospecting requiring surface disruption.

Timber program outputs will be low. The Sinkin Experimental Forest may provide some timber outputs.

Management Practices and Associated Standards and Guidelines: MA 8.1

OVERALL MANAGEMENT AREA CONSIDERATION

1900 Land and Resource Management Planning

Vegetation

Manipulate vegetation to meet the intent of the law or order designating the area.

Special Areas

Areas having National recognition as of 12/93, other than Wildernesses, are:

<u>Area</u>	<u>Classification</u>	<u>District</u>
Berryman Trail	National Recreation Trail	Potosi
Crane Lake Trail	National Recreation Trail	Fredericktown
Cupola Pond	National Natural Landmark	Doniphan
Decker Cave	National Register of Historic Places	Rolla
Eleven Point River	National Scenic River	Eleven Point
Greer Spring	Special Management Area	Eleven Point
Hayden Bald	SAF Natural Area (Open Glade)	Ava
Ridgerunner Trail	National Recreation Trail	Willow Springs

Specific standards and guidelines for each of these nationally recognized areas are provided in this management prescription.

State Natural Areas as of *08/2002* are:

<u>Area</u>	<u>District</u>
Cannon Springs	Willow Springs
Hayden Bald	Ava
Cupola Pond	Doniphan
Wells Branch Fen	Doniphan
Blair Creek Raised Fen	Salem
Grasshopper Hollow Fen	Salem
Tupelo Gum Pond	Winona
Overcup Oak Sink	Winona
Solomon Hollow Glades	Houston/Rolla

Standards and guidelines for Hayden Bald and Cupola Pond are provided in this management prescription.

Standards and guidelines for each State Natural Area are developed as part of the nomination and are part of the Forest Plan designation.

Until specific standards and guidelines are developed, management of these areas will emphasize protection from any disrupting activities.

Hayden Bald, Cupola Pond and Tupelo Gum Pond are candidates for Research Natural Area classification.

Forest Special Areas as of *7/96* are:

<u>Area</u>	<u>District</u>
Glade Top Trail Fractured Ridge	Ava
(1) Sugar Camp Trail - Yellow Wood Site	Cassville
(1) Wolfpen Bluff	Cassville
Big Branch	Cedar Creek
Lower Current River	Doniphan
Deer Leap	Doniphan
(2) Blue Flag Fen	Doniphan
(2) Wash Creek Alder Bog Fen	Fredericktown
Crane Pond Creek Shut-In	Fredericktown
Silver Mines	Fredericktown
(2) Little St. Francis Canyon	Fredericktown
Lower Rock Creek	Fredericktown
(2) Bidwell Creek Glade	Fredericktown
(2) Salamander Hollow	Fredericktown
(2) Mayfield Spring Wet Meadow	Houston
(2) The Gulf	Poplar Bluff
(2) Barton Fen	Potosi
(2) Clear Creek Fen	Potosi
(2) Slaughter Sink	Rolla
Natural Bridge	Rolla
Nova Scotia	Salem
(2) Upland Wet Woods	Salem
(2) Bates Hollow Fen	Salem
(2) Wet Hollow Fen	Salem
(2) Swamp Hollow Fen	Salem
(2) Medley Hollow Hanging Fen	Salem
(1) Indian Creek	Willow Springs
(2) Twin Sink Hollows	Willow Springs
Still Spring Cave	Willow Springs
Falling Spring	Winona

Forest Special Areas marked (1) are nominated as candidates for Research Natural Areas. Areas marked (2) are candidates for State Natural Area status.

Those areas eventually classified as either Research Natural Areas or State Natural Areas will be dropped from the Forest Special Area Classification in favor of the higher level recognition.

Specific standards and guidelines for Forest Special Areas will be developed and included in the Forest Plan.

Until specific standards and guidelines are developed, management of Forest Special Areas will emphasize protection from any disrupting activities.

Forest Plan Appendix I provides an inventory of Special Areas and candidates for Special Area classification. This Appendix will be updated periodically to reflect any change in classification or candidacy of current or future areas.

Other areas of special recognition are the 'Lands excluded from the Irish Wilderness,' the Sinkin Experimental Forest, and National Forest System lands within Fort Leonard Wood.

All elements of this goal except for national designated trails, national rivers, the experimental forest and National Forest System lands within Fort Leonard Wood will emphasize maximum site protection until specific site or recovery plans are implemented.

(The management for National Forest lands within the boundaries of Fort Leonard Wood is discussed below under 2700, Special Uses Management.)

The Forest will continue the same cooperative role with North Central Forest Experiment Station in carrying out research projects on the 4,127 acres within the Sinkin Experimental Forest.

2200 Range Management

Forage management will comply with the special area management objectives. Normally range management will not be appropriate on these areas due to their unique or special significance.

2300 Recreation Management

Recreation Opportunities

Provide for recreation opportunities and use to meet the intent of the law, order or special purpose of the area.

Unless otherwise stated Roaded Natural ROS class will be applied to these areas.

Use may be regulated where demand exceeds carrying capacity, or it is needed to prevent site deterioration or to maintain the ROS classification.

Investment in recreation facilities will be held to the minimum necessary to protect the site, to meet development objectives, and to meet ROS classification objectives.

Trails

Trails will be consistent with the special area management objectives.

Visual Management

Visual objectives for each special area will provide for protection of its unique qualities, be consistent with the area's management objectives and the law or order of designation.

Visual management planning will be based on the Visual Management System (VMS) and Visual Absorption Capacity (VAC).

Unless modified by specific standards and guidelines for individual special areas, the Visual Quality Objectives are as follows:

National Classification	As defined by specific standards and guidelines.
State Natural Areas	Retention
Forest Special Areas	Retention
Lands Excluded from Irish Wilderness.	Retention
Sinkin Experimental Forest	Utilize Forest-wide Visual Management standards and guidelines in conjunction with those of Management Prescription 3.2.
National Forest lands within Fort Leonard Wood	Utilize Forest-wide Visual Management standards and guidelines in conjunction with those of Management Prescription 3.4.

Major earth disturbing activities should normally not be undertaken on Ecological Land Types (ELT) with Visual Absorption Capacity (VAC) ratings identified in Forest-wide standards and guides lower than those shown below:

Variety Class	VISUAL ABSORPTION CAPACITY						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	M	M	M	M	M	M	M
Common-Class B	M	M	M	M	ML	L	L
Minimal-Class C	M	M	ML	ML	ML	L	L

VAC: H = High; H-M = High-Moderate; M = Moderate; M-L = Moderate-Low; L = Low

2400 Timber Management

Management Intensity and Utilization

All timber management activities will be subject to the management objective for the individual area.

Timber management activities normally are not appropriate for these areas due to their unique or special significance. Exceptions are the Sinkin Experimental Forest, National Forest System lands within Fort Leonard Wood, National Trails and the Lower Current River Forest Special Area.

2600 Wildlife Management

Provide habitat for native and naturalized fish and wildlife common to the area within constraints of the law, order or the special purpose of the area.

Habitat manipulation will normally be limited to the needs of threatened, endangered, rare or sensitive species and species of concern. Natural ecological processes will normally prevail. Exceptions are the Sinkin Experimental Forest, National Forest System land within Fort Leonard Wood, National Trails and the Lower Current River Forest Special Area.

Within each clearcut or seedtree unit, retain a minimum of 15 sq. ft. of basal area of reserve trees. Within each shelterwood unit, retain a minimum of 25 sq. ft. of basal area of reserve trees. Group or retain these trees around large snags, large live trees, den trees, and within intermittent drainages to minimize potential for windthrow and provide thermal protection of suitable Indiana bat roost trees.

2700 Special Uses Management

Special uses will not normally be authorized.

A Memorandum of Understanding complementing Forest Plan direction will be drawn up between the Forest Service and Fort Leonard Wood to document specific coordination measures for the management of National Forest System lands within the boundaries of Fort Leonard Wood and to specify provisions for technical assistance by the Forest Service in carrying out resource management on Army lands within the boundaries of Fort Leonard Wood.

This Memorandum of Understanding will be reviewed at least annually to ensure the interest of both the Forest Service and U.S. Army are being met.

National Forest System lands within the boundary of Fort Leonard Wood will be managed under the standards and guidelines of Management Prescription 3.4.

Forest Service and military activities while seeking Management Prescription 3.4 objectives will be coordinated with the needs and objectives of both organizations.

Requests by the U.S. Army to impact National Forest System lands which are contrary to Forest Plan direction will be approved only if critical to national defense or supported by an environmental analysis prepared and approved by the Forest Service that identifies measures to mitigate adverse impacts.

2800 Minerals and Geology

Mineral Exploration

Surface disturbing mineral exploration will usually be excluded. Requests for exploration requiring surface disturbance within these areas will need to be supported by an environmental analysis before approval.

Common Variety Minerals

Removal of common variety minerals will not be permitted from any area.

4000 Research

Continue to cooperate with Forest Service Research on the Sinkin Experimental Forest.

The following 8.1 special areas will be evaluated for Research Natural Area classification.

<u>Area</u>	<u>District</u>	<u>Est. Acreage</u>	<u>Present Classification</u>
Hayden Bald	Ava	40	SAF and Missouri Natural Area
Sugar Camp Yellowood	Cassville	50	Forest Special Area
Wolfpen Bluff	Cassville	5	Forest Special Area
Cupola Pond	Doniphan	160	SAF and Missouri Natural Areas and National Natural Landmark
Grasshopper Hollow Fen	Salem	30	Forest Special Areas
Spring Creek	Willow Springs	200	Forest Special Areas
Noblett Creek	Willow Springs	300	Forest Special Areas
Indian Creek	Willow Springs	300	Forest Special Areas
Tupelo Gum Pond	Eleven Point	32	Missouri Natural Areas

Management direction for these areas will be protection until an RNA classification decision is made. Any management activity presently permitted for these areas will be postponed if it would jeopardize consideration for Research Natural Area status.

5100 Fire Management

Value at risk will be considered a "1" on a scale of 1 (high) to 5 (low). This value may vary between areas based on their significance.

Operation and maintenance plans for these areas will incorporate special fire suppression measures as warranted.

The fire suppression strategy of control will be applied to all special areas unless otherwise stated by specific area direction.

Use prescribed fire to satisfy individual area objectives.

5400 Land Ownership

Surface Ownership

The purchase of adjoining lands from willing sellers will be a high priority if needed to protect or enhance a "special area."

7300 Buildings and Structures

Limit buildings and structures within special area boundaries to those needed to support management objectives.

7400 Public Health and Pollution Control Activities

Solid Waste

Landfill disposal sites will not be allowed.

7700 Transportation System

Roads

Provide only those local and temporary roads needed to comply with special area management objectives.

ELEVEN POINT NATIONAL SCENIC RIVER - 44.4 miles

A National Scenic River extending 44.4 miles in length on the Eleven Point River within the Eleven Point Ranger District. (Public Law 90-542).

1900 Land and Resource Management Planning

Vegetation

Vegetation will not normally be manipulated for resource management purposes. Exceptions are noted under resource program standards and guidelines of this section.

Special Areas

The following areas within the Eleven Point National Scenic River boundary will be evaluated for State Natural Area classification.

Turner Mill Spring and Cave
Horseshoe Bend Bluff
Bliss Spring
Eleven Point River Bluff
Boze Mill Spring
The Narrows
Greer Spring

Those areas selected as State Natural Areas will have specific standards and guidelines formulated for their management that conform to both Federal and State criterion. Federal criterion will take precedence if conflict should occur.

Until State classification is resolved, the areas will be managed under provision of the National Scenic River, modified as needed to protect and/or enhance their qualifications.

2200 Range Management

National Forest System lands in The Eleven Point National Scenic River corridor will not be managed for range forage production.

2300 Recreation Management

Apply Semi-Primitive Nonmotorized ROS objectives to the terrestrial portion of the river corridor except at developed motor vehicle facilities which will be managed under either Semi-Primitive Motorized, Roaded Natural or Rural ROS objectives, as determined by their development level.

Apply Semi-Primitive Motorized ROS objectives to the water travel zone of the river corridor.

A permit system to regulate individual users will not be implemented this Plan period.

Use control, if needed, will be limited to restrictions on the timing of entry at specific access locations during peak use periods only.

Use will be encouraged at lesser used access points particularly in peak use periods.

Vehicle access to the river will be provided at the following locations: Thomasville, Cane Bluff, Boom Hole, Greer Crossing, Turner Mill North, Turner Mill South, McDowell, Whitten Church, Riverton East, and Highway 142. (See Regional Forester closure order, August 29, 1983). Also, Long Hollow, according to the Greer Spring Acquisition and Protection Act of 1991.

These vehicle access points will be managed under the following objectives for development level, ROS and commercial use by outfitters.

<u>Access Point</u>	<u>Development Level</u>	<u>ROS</u>	<u>Commercial Use</u>
Thomasville	3	Roaded Natural	Yes
Cane Bluff	3	Roaded Natural	Yes
Boom Hole	2	Semi-Primitive Motorized	No
Greer	4	Rural	Yes
Turner Mill North	3	Roaded Natural	No
Turner Mill South	2	Semi-Primitive Motorized	Yes
McDowell	2	Semi-Primitive Motorized	No
Whitten Church	2	Semi-Primitive Motorized	Yes
Riverton East	4	Rural	Yes
Highway 142	4	Rural	Yes
Long Hollow	2	Semi-Primitive Motorized	No

The Boom Hole, Turner Mill North, McDowell, and Long Hollow accesses will be managed to encourage use by those wishing to avoid high user densities.*

Facilities design will be the minimum needed to protect the site and provide user needs at the least cost.

Motor vehicle access points will be designed to provide vehicle parking in a manner that protects the river bank, screens the vehicle from the view of river travelers, facilitates authorized uses, and discourages tailgate camping.

Dispersed camping is permitted on National Forest System lands throughout the river corridor except within posted areas associated with motor vehicle access sites or where use would damage a specific site. Public camping is not permitted on private lands covered by scenic easement.

Existing float camps may be retained but they will be allowed to decline to the criteria for Semi-Primitive ROS classification. (Development Level 1).

Undesirable float camp sites will be phased out as opportunity permits.

New float camps will not be developed.

Sanitation facilities will be provided within the river corridor when needed for environmental protection.

Vegetation will be manipulated in the river bank zone to assist in meeting dispersed use objectives. This may include measures to protect or prevent use in environmentally sensitive sites or to facilitate use of acceptable sites.

Horse use will be permitted outside of developed areas. No special horse use facilities will be developed in the river zone.

Signing will be the minimum needed for user safety and area identification. Signing will emphasize the "welcome" and "good host" attitude.

Canoe outfitters will be permitted on the Eleven Point National Scenic River at selected vehicle access sites when operating under a special use permit. Currently the present number of authorized outfitters is adequate to meet river management objectives. The granting of future outfitter permits will be determined by how well public needs and user distribution objectives are met.

Due to the size of the river and the emphasis on the natural river environment, air boats and outboard motors larger than 25 HP at the propeller shaft are not permitted.

The pack-in/pack-out philosophy will be applied to no-fee campgrounds, dispersed activity areas and wherever its opportunity for success is possible.

Trails

Trails within the Eleven Point National Scenic River Area will be limited to hiking or hiking-horse trails.

Use of the Greer Spring Trail is limited to foot travel only.

Interpretive Services

Emphasize the use of maps and informational brochures to direct the public to areas of interest.

Make information available year-round at the District Offices and Supervisor's Office and during the full service season at developed sites.

Any investment in site-specific interpretation will be kept to the minimum necessary to accomplish the objective.

Limit site interpretation to situations of high use or to protect the specific site.

Visual Quality

The portion of this special area within sight of access roads, developed sites, and water travel are classed Sensitivity Level One Travelways. (See Forest-wide standards and guidelines 2300).

The Visual Quality Objective matrix for Management Prescription 6.2 - Variety Class A, will be applied to the entire river corridor.

2400 Timber Management

Timber management practices will not be implemented on National Forest System lands within the Eleven Point National Scenic River corridor unless needed for public safety or salvage which does not detract from river management objectives.

2600 Wildlife Management

Vegetation within the Eleven Point National Scenic River corridor will not normally be manipulated for wildlife habitat purposes. Exception will be to perpetuate unique natural ecosystem or manage habitats for threatened or endangered species or species of concern listed in Appendix H.

Wildlife management will emphasize species requiring old growth forest conditions.

2700 Special Uses Management

Special use permits will normally be limited to canoe outfitter permits.

Canoe outfitter permits will not be granted for the use of Boomhole, McDowell, Turner Mill North, or Long Hollow access points.

2800 Minerals and Geology

Mineral exploration within the Eleven Point National Scenic River corridor may be permitted outside the area readily apparent to users of access roads, developed sites and over water travel if it is supported by an environmental assessment.

Except that the 2,796 acres within the Scenic River Area corridor resulting from the Greer Spring Acquisition and Protection Act of 1991 is withdrawn from location, entry, and patent under the mining laws of the United States, and from the operation of the mineral and geothermal leasing laws of the United States.

Residue treatment will meet the visual quality objectives for the site.

Stumps will be cut flush with the ground.

Exploration operations will not be allowed on weekends or holidays from March 1 through the Thanksgiving Day weekend.

If existing access routes are not available to the drill site, a temporary access may be developed by removing only the minimum vegetation necessary. (Reference Forest-wide standards and guidelines, Section 7700, for temporary road standards).

Surface excavation at drill sites will be prohibited unless essential to level rig. Upon completion of operations, the site will be returned to as close to the original condition as practical. (Reference Forest-wide 2800 standards and guidelines).

No drilling will be allowed on slopes greater than 20%.

Use existing openings when available. Cutting brush and trees up to five inches diameter breast height will be permitted.

5100 Fire Management

The fire suppression strategy within the Eleven Point National Scenic River zone is control.

Prescribed fire may be used to achieve management objectives.

5300 Law Enforcement

Maintain only the level of law enforcement presence needed to protect visitors, resources, and enforce regulations.

Cooperative law enforcement agreements will be emphasized as funds permit.

Emphasize cooperation with responsible County and State officials in search and rescue activities.

***5400 Land Ownership**

An occupancy use reservation of 110 acres is reserved by Louis S. Dennig, Jr. and Marie Dennig Gildehouse and their decedents for a term ending 5/2/2013. (See warranty deed to the United States dated January 12, 1993, Book 289, page 70, Oregon County records.)*

7100 Engineering Operations

Where needed for administrative purposes, easements fronting on water shall be identified by signs.

7400 Public Health and Pollution Control Activities

Water Supply

Drinking water will be provided only at Greer Campground.

7700 Transportation System

Roads

Public motorized access is restricted to the designated routes within the National Scenic River Area, as listed in the Regional Forester's Closure Order of August 29, 1983, and the Greer Spring Acquisition and Protection Act of 1991.

DECKER CAVE

Listed on National Register of Historic Landmarks as a National Archaeological Site of 82 acres located on the Rolla Ranger District.

2300 Recreation Management

Recreation Opportunities

Apply Semi-Primitive Nonmotorized ROS objectives to this area. Reduced service management will normally apply.

Cultural Resources

A minimum of four documented visits during different seasons of the year will be made to determine that no vandalism, unauthorized digging or collecting is being done.

This area will be managed to protect the cultural resource with no timber cutting, timber stand improvement or grazing permitted.

Only the minimum number of signs necessary showing the area classification will be erected and maintained.

Visual Quality

This area will be managed for a VQO of Retention.

2400 Timber Management

Timber is not managed within this area.

5100 Fire Management

The fire suppression strategy of control will be applied under all fire situations.

CUPOLA POND

A National Natural Landmark, SAF Natural Area and Missouri Natural Area of 160 acres located on the Doniphan Ranger District.

2200 Range Management

Range management is not permitted.

2300 Recreation Management

Recreation Opportunities

Apply Roaded Natural ROS class objectives to this area.

Only the number of signs necessary to show the area classification will be erected and maintained.

Reduced service management will normally apply.

Use may be regulated if needed to protect this site from overuse or botanical collecting.

Visual Quality

This site will be managed for a VQO of Retention.

2400 Timber Management

No timber management practices are permitted.

4000 Research

Cupola Pond is a candidate for Research Natural Area Classification. Defer any authorized management activities that could compromise the area's candidacy until a classification decision is made.

5100 Fire Management

The fire management strategy of control will be applied in all fire situations.

FORT DAVIDSON

Listed in the National Register of Historic Places as a National Historic Site of 14.72 acres located in Ironton, Missouri and assigned to the Fredericktown Ranger District.

2300 Recreation Management**Recreation Opportunities**

Apply Rural ROS class objectives to this area.

Cultural Resources

The Missouri Department of Natural Resources, under a special use permit, may continue to operate Fort Davidson as a historical site. Exchange of this site to State jurisdiction will be sought.

The special use permit will not grant the permittee any right to conduct archaeological explorations or excavations of any kind on this area.

Visual Quality

Area will be managed for a VQO of Partial Retention.

5400 Land Ownership

Explore the opportunity to exchange this site to the State of Missouri.

NATIONAL RECREATION TRAILS

The following are National Recreation Trails by current Plan direction (1986).

<u>Trail</u>	<u>Miles</u>	<u>District</u>
Ridge Runner Trail	38	Willow Springs
Berryman Trail	24	Potosi
Crane Lake Trail	5	Fredericktown

2300 Recreation Management

Recreation Opportunities

Apply Semi-Primitive Nonmotorized ROS criteria to portions of the Ridge Runner Trail traversing Management Area 6.1.

Apply Semi-Primitive Motorized ROS criteria to the Berryman Trail.

Apply Roaded Natural ROS criteria to all of the Crane Lake Trail and that portion of the Ridge Runner Trail traversing Management Areas 4.1 and 3.4.

Trailhead and parking area development will be limited to those currently (1986) established.

All campfires should be located at least 100 feet from the edge of the trail clearing.

Camping facilities will not be provided along the trail other than those currently established at the Berryman Trail.

Overnite camping is prohibited at the Crane Lake recreation site.

No user fees will be charged for trail use. A fee will be charged at developed campgrounds that may occur along the trail when services requiring fee collection are provided.

All users will be encouraged to apply "No Trace Camping" techniques and to pack-out their refuse.

When use justifies and funding is available full service management may be provided. Reduced service management will apply at all other times.

Trails

Motor vehicle use will not be permitted.

"No Motor Vehicles" signs will be posted and maintained on the trail at every intersection with a system road open to the public.

Only the Berryman Trail and double lane portions of the Crane Lake Trail will be maintained for horseback use.

Trails will be maintained to a level that complies with ROS objectives and provides for year around use.

Erosion will be controlled through preventive maintenance. Natural dips will be used to drain water off the trail. When erosion does occur, repair will be accomplished by filling with native material, constructing drainage lead out ditches and/or water bars. Occasionally short trail reroutes may be needed.

Treetops and brush will be utilized to discourage use of switchbacks, cut-a-crosses and other areas of potential erosion.

Trails will not coincide with any road except where they intersect.

Gray diamond assurance markers will also be maintained. These markers will be painted on trees or posts adjacent to the trail, particularly at points of possible confusion.

Visual Quality

The National trails will be managed as a Sensitivity I Travelway.

All work involving the removal of live or dead trees along the trail will meet the slash disposal requirements for timber harvest.

2400 Timber Management

Timber will continue to be cut throughout the area containing the trail. Cutting and cultural activities will be modified to prevent adverse impacts to the trail.

National trails are a Sensitivity I Travelway which requires management practices to provide a safe, aesthetically pleasing experience for the hikers. Policies will be to:

- Maintain a diverse forest environment.

- Limit logging activity to winter months.

- Conform to management area direction for areas traversed by trail routes.

- Locate log decking areas where they will not be visible from the trail.

- Trails will not be used as a skid trail or temporary logging road. Skid trails crossing the hiking trail will normally be at least 600 feet apart except that topography may dictate occasional approval of closer trails. Loggers will not be allowed to operate vehicles within trail clearing except at approved trail crossing.

- Lop and scatter all slash so it lies within 18 inches of the ground within the near foreground on all trails.

- Fell all deadened trees within 300 feet of either side of the trail.

Limit foliar spray application for selective control of woody plants to those plants less than 3 feet in height if within 300 feet of either side of the trail.

Favor flowering and colorful vegetation species.

Conduct logging activity from the back side of the near foreground zone, where possible.

Paint marks used for identification of project work will be placed on the side of the tree away from the trail so marks are not visible from the trail.

2600 Wildlife Habitat Management

Wildlife habitat improvements will be permitted along the trail like those of the management area it is traversing. Forage development will be subject to the same frontage limitations as regeneration cuts.

Both hunter and hiker use of the trail is permitted. Signs will be posted at trailheads during deer hunting season to alert hikers of possible hunting activity.

Within each clearcut or seedtree unit, retain a minimum of 15 sq. ft. of basal area of reserve trees. Within each shelterwood unit, retain a minimum of 25 sq. ft. of basal area of reserve trees. Group or retain these trees around large snags, large live trees, den trees, and within intermittent drainages to minimize potential for windthrow and provide thermal protection of suitable Indiana bat roost trees.

7700 Transportation System

Roads

The transportation system is that identified on Forest Plan transportation maps. System roads may be constructed or maintained across the trail.

HAYDEN BALD

A SAF Natural Area and Missouri Natural Area of 40 acres located on the Ava Ranger District.

1900 Land and Resource Management Planning

This site should be burned over every 4 to 6 years to prevent invasion of redcedar and to simulate the natural processes of the glade ecosystem.

All four sides of the site will be fenced.

One to four signs as needed showing the areas classification as a Natural Area will be erected and maintained.

Use may be regulated if needed to protect this site.

2300 Recreation Management

Recreation Opportunities

Apply Roaded Natural ROS class objectives to this area.

Reduced service management will normally apply.

Access will be limited to foot travel.

Visual Quality

Hayden Bald will be managed for a VQO of Partial Retention realizing that in those periods immediately after burning it will drop to Modification for a short duration.

4000 Research

This site is a candidate for Research Natural Area classification. Defer any authorized management activities that could compromise the area's candidacy until a classification decision is made.

5100 Fire Management

The fire management strategy of control will be applied in all fire situations.

IRISH WILDERNESS EXCLUDED LANDS

An area on the Doniphan Ranger District of approximately 1,040 acres set aside by Congress from the Irish Wilderness that permits mineral exploration.

1900 Land and Resource Management Planning

Apply Management Prescription 5.1 Wilderness standards and guidelines common to the Irish Wilderness to this acreage except as modified for mineral exploration and development.

2300 Recreation Management

Visual Quality

This area will be managed for a VQO of Retention.

2800 Mineral and Geology

Surface disturbing exploration (including core drilling) will be permitted on this acreage under Management Area 8.1 and Forest-wide mineral exploration standards and guides with the following modifications:

Meet VQO of retention for overall area.

All cut vegetation will be removed to a designated area or lopped and scattered to a depth of no more than 18 inches.

Stumps will be cut flush with the ground.

Operations will not be allowed on weekends or holidays from March 1 through the Thanksgiving Day weekend.

Drilling and associated activities and equipment will be allowed only within the confines of the existing roads to the extent possible. Temporary access may be developed to approved off-road drill sites by removing only essential brush and trees. (Reference Forest-wide temporary road standards and guidelines 7700). Upon the discovery of favorable geology in a core sample, the District Ranger may authorize, on a hole-by-hole basis, drilling at an off-road site when dictated by geologic formations to prove up the discovery.

Surface excavation at drill sites will be prohibited unless essential to level rig. Upon completion of operations, the site will be returned to as close to the original condition as practical. (Reference Forest-wide standards and guidelines 2800).

No exploratory drilling will be allowed on slopes greater than 20 percent.

Road rutting will be limited to a maximum depth of 4". Roads will be reclaimed to an acceptable condition as soon as they serve their purpose.

No more than 6 drill sites per permit will be in use at any one time.

Revegetate all disturbed areas with native vegetation. Native species to be used will be specified by the District Ranger consistent with visual quality objectives.

Lower Current River - Forest Special Area.
Approximately 2,040 Acres NFSL
Total River Length - 16 miles

Certain National Forest System lands (NFSL) in proximity to that portion of the Current River bounded on the north by the Ozark National Scenic Riverway and on the south by Doniphan, Missouri, are classified as a Forest Special Area. The management objective for selected National Forest lands along the 16-mile stretch of river is to protect and enhance the recreation experience of river users. The affected lands total approximately 2,040 acres. They include National Forest lands immediately adjacent to the river (approximately one-quarter mile back from either bank) and those more distant areas readily seen by river travelers.

1900 Land and Resource Management Planning

Vegetation

Natural vegetative communities as defined under Forest-wide standards and guidelines 1900 will be sought.

Vegetation manipulation may be done for resource management purposes, but only if it does not conflict with the recreation objective.

2200 Range Management

The development of the forage resource will be limited to existing allotments within this special area. Allotment plans will be designed to protect or enhance recreational, visual, wildlife, and water quality values.

Development of the grazing resource may proceed when natural grasslands occur as a relatively stable community or seral stage.

Graze non-native and off-site native grasses until they revert naturally to woody vegetation or appropriate native grasses or until capital investments have reached a condition requiring a major overhaul or reconstruction.

2300 Recreation Management

Recreation management needs will take precedence over other resource management needs in this area whenever conflicts in discretionary management activities occur.

The Semi-Primitive Motorized ROS class will be applied to all lands within this area except within the boundaries of developed recreation sites.

Each developed site will be managed under the ROS class appropriate for the development level assigned.

<u>Site</u>	<u>Development Level</u>	<u>ROS</u>
Float Camp	3	Roaded Natural
Deer Leap	3	Roaded Natural
Bay Nothing	2	Semi-Primitive Motorized

Investment in recreation facilities will be held to the minimum necessary to protect the site and meet ROS classification objectives.

Additional site development or upgrading will not occur unless substantiated as described under Forest-wide standards and guidelines, 1800, 2300.

Canoe and tube outfitters will be allowed to provide service to the developed sites when under special use permit.

Visual Management

The portion of this special area within sight of access roads, developed sites and water travel are classed as Sensitivity Level One Travelways (see Forest-wide standards and guides 2300) and the Visual Quality Objective Matrix for Management Prescription 6.2 - Variety Class A will be applied. The same matrix will be applied to other lands within this area based on applicable sensitivity level.

2400 Timber Management

Timber management practices will not be implemented on National Forest lands within this special area except as necessary for public safety, response to special wildlife habitat needs, or salvage.

2600 Wildlife Management

Those portions of this special area that conform to riparian or other specialized habitats will be managed by the respective Forest-wide standards and guidelines.

Wildlife habitats will normally not be manipulated except for special needs of specific species.

Habitat manipulation will be limited by natural community vegetative objectives and priority of the recreation objective.

2700 Special Uses Management

Except for canoe and tube outfitters and special river oriented events, the issuance of special use permits will be denied whenever possible.

2800 Minerals and Geology

Mineral exploration within the special area may be permitted outside the area readily apparent to users of access roads, developed sites and over water travel, if it is supported by an environmental assessment and other Forest Plan direction, i.e., Forest-wide riparian area (2600) and mineral management (2800) standards and guidelines.

Residue treatment will meet Forest-wide standards and guides for visual management.

Operations will not be allowed on weekends or holidays, from March 1 through the Thanksgiving Day weekend.

If existing access routes are not available to the drill site, a temporary access may be developed by removing only the minimum vegetation necessary. (Reference Forest-wide temporary road standards and guidelines 7700).

Surface excavation at drill sites will be prohibited unless essential to level rig. Upon completion of operations, the site will be returned to as close to the original condition as practical. (Reference Forest-wide standards and guidelines 2800).

No drilling will be allowed on slopes greater than 20%.

5100 Fire Management

The fire suppression strategy within this special area is control.

5300 Law Enforcement

Maintain only the level of law enforcement presence needed to protect visitors, resources, and enforce regulations.

Cooperative law enforcement agreements will be emphasized as funds permit.

Emphasize cooperation with responsible County and State officials in search and rescue activities.

7400 Public Health and Pollution Control Activities

Water Supply

Drinking water will be provided only at Float Camp campground and picnic area and Deer Leap campground.

7700 Transportation System

The Forest Service road system permitted within this special area is shown on the Forest Plan map. All other existing roads on National Forest lands unless authorized by a special use permit or outstanding right will be closed.

***GREER SPRING SPECIAL MANAGEMENT AREA**

An area of approximately 4,098 acres established by the Greer Spring Acquisition and Protection Act of 1991. This area shall be managed in accordance with the Act and with provisions of law generally applicable to units of the National Forest System to the extent consistent with the Act.

2300 Recreation Management

Hunting and fishing shall be permitted in accordance with applicable Federal and State law.

Foot access will be provided to Greer Spring from a location along State Highway 19 in a manner which will conform to and lay lightly upon the natural terrain, environment, vegetation and soil. To the extent practicable, the path will remain unsurfaced.

2400 Timber Management

The harvesting of timber is permitted only to control insects or disease, for public safety, for salvage sales, or to accomplish the objectives of the special management area which are to provide for public outdoor recreation, to protect the natural, archaeological and scenic resources, and to provide for appropriate resource management.

To the extent practicable, timber harvesting shall be conducted only by the individual tree selection method.

2800 Minerals Management

Lands within the special management area are withdrawn by the establishing legislation from location, entry, and patent under the mining laws of the United States, and from the operation of the mineral and geothermal leasing laws of the United States.

7700 Transportation System

Construct and maintain only those roads which are indicated on the map entitled "Dennig Property," as a part of the Act.

The road on the west side of State Highway 19 shall terminate at a point that is not visible from the Eleven Point River.

The road on the east side of State Highway 19 shall terminate at the wild and scenic river boundary.

Provide access to such roads (as shown on the "Dennig Property" map), or to timber harvesting in such a manner as to minimize environmental impact.

Roads will be maintained to a minimum standard to allow passage of two-wheel-drive vehicles except under exceptional weather conditions.*

MANAGEMENT PRESCRIPTION 9.1

This prescription applies to lands not needed to meet projected demands for the next 50 years, or to lands that are currently uneconomical for resource investment.

Purposes of this Prescription:

- (1) To provide direction for these lands.
- (2) To minimize the cost of keeping the land in public ownership.
- (3) To identify the fixed cost of retaining National Forest System lands, and the level of uninduced outputs that occurs from them.
- (4) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition:

On management areas assigned this prescription, management practices will be limited to 1) those needed to protect life, health and safety of incidental users from man-made hazards, 2) the prevention of environmental damage caused by water, erosion, pests or fire and uninduced uses to National Forest System lands, adjoining ownerships and downstream areas, 3) the administration of unavoidable special uses and 4) compliance with those requirements of management that are not within the Forest Supervisor's authority to deny.

These lands are low in output capability or have an unfavorable benefit-cost relationship. Vegetation may range from cedar glade to hardwood to shortleaf pine. Plant and animal diversity and successional stages are determined primarily through the forces of nature. Animal species will be predominantly those associated with later successional stages of vegetation. Public access may range from non-existent to excellent. These Forest areas will vary in size, but will normally range from 40 to several hundred acres. This management prescription was available for assignment on all National Forest acres. It usually occurred on an individual stand basis unless specifically assigned to large areas to meet alternative design objectives.

Special uses and mineral exploration and development will be permitted. There will be some use for a wide variety of uninduced activities such as hunting, fishing, and other recreation. Lands are considered unsuitable for timber production.

Management Practices and Associated Standards and Guidelines: MA 9.1

1900 Land and Resource Management Planning

Vegetation

Make no investments in vegetation management, unless needed to protect adjoining lands from pests, fire, or to protect the resources and the existing investments.

When minimum management areas occur as scattered stand sized units they will be treated as deferred stands within the context of the management area that encompasses them. Only those 9.1 Management Area standards and guidelines implementable relative to small, dispersed, tract conditions will be applied.

Minimum level management will be applied to 25,900 acres of the oak-hickory and oak-pine forest types (Types 44, 51-59). These areas are further qualified as occurring on forest lands with a site index of 45-50 feet. Targeted acreage by Ranger District is:

District	Acres	District	Acres
Ava	1,400	Potosi	5,560
Cassville	400	Rolla	450
Cedar Creek	0	Salem	2,360
Doniphan	1,570	Van Buren	1,450
Fredericktown	2,550	Willow Springs	3,750
Houston	1,030	Winona	1,280
Poplar Bluff	4,100	Total	25,900

To the extent possible minimum level management acreage should be identified within mapped management areas as follows: 6.1, 6.2, 3.1, 3.2, 4.1, 3.4.

Existing vegetation communities, for example legumes, food plots, fescue pastures, or pine plantations, which differ from the natural communities for a particular site shall be allowed to revert to natural vegetation.

Species and materials used in restoration work will be those that permit the achievement of the restoration objective at the least cost.

2200 Range Management

No capital investment will be made to develop or enhance forage production or structures. Hay cutting may be permitted on existing forage areas.

2300 Recreation Management

Recreation Opportunities

Make no special provisions for recreation opportunities beyond the existing situation.

Apply Roaded Natural ROS class objectives to this area.

The capacity coefficient for Roaded Natural ROS class under minimum level management is 1.4 RVD per acre per year for dispersed recreation. This reflects only uninduced recreation use.

Administration of uncontrollable incidental recreation use shall be at the least cost necessary to reach the objective.

There shall be no capital investment in recreation facility maintenance or development.

All existing recreational facilities will be closed.

Trails

Permit only trails which are necessary for access to other ownerships and management areas.

There will be no investment made in trail maintenance or development except as needed to meet goals of adjoining management areas and protect the life and safety of incidental Forest users.

Off-Road Vehicles (ORV)

Off-road vehicle use will be allowed to the extent it does not cause resource damage.

Cultural Resources

The discovery of cultural resources on Management Area 9.1 lands will result in their reclassification to the management prescription that is immediately adjacent.

Visual Management

All resource management activities will meet, as the minimum, the Visual Quality Objectives displayed below:

Variety Class	VISUAL QUALITY OBJECTIVE						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	R	PR	PR	PR	M	M	M
Common-Class B	PR	M	M	PR	M	MM	MM
Minimal-Class C	PR	M	M	M	MM	MM	MM

Distance Zones: fg-foreground; mg-middleground; bg-background

VQO: R-Retention; PR-Partial Retention; M-Modification; MM-Maximum Modification

Visual Rehabilitation (reh) and Enhancement (e) projects will be deferred in these areas.

Major earth disturbing activities should normally not be undertaken on Ecological Land Types (ELT) with Visual Absorption Capacity (VAC) ratings identified in Forest-wide standards and guidelines lower than those shown below:

Variety Class	VISUAL ABSORPTION CAPACITY						
	Sensitivity Level & Distance Zone						
	Most Sensitive			Sensitive			Least Sensitive
	fg1	mg1	bg1	fg2	mg2	bg2	3
Distinctive-Class A	M	M	ML	M	ML	ML	ML
Common-Class B	M	ML	ML	M	ML	L	L
Minimal-Class C	M	ML	L	ML	L	L	L

VAC: H = High; H-M = High-Moderate; M = Moderate; M-L = Moderate-Low; L = Low

2400 Timber Management

Silvicultural Systems

Silvicultural systems are not applied to this management prescription.

Harvesting

Timber is not harvested except in salvage situations.

Incidental use of firewood is permitted.

2500 Water and Soil Resource Management

There will be no investment for soil productivity improvement.

Water management will be the minimum necessary for cooperation with water users and other agencies.

2600 Wildlife Management

There shall be no investment in fish and wildlife habitat with exceptions as noted.

Plant and animal diversity will be that provided by natural forest communities under the forces of nature.

Special habitats will be protected.

Threatened and endangered species habitat will be managed as warranted.

2800 Minerals and Geology

Mineral Exploration

Surface disturbing exploration (including core drilling) will be permitted.

If existing access routes are not available to the drill site, a temporary access may be constructed to provide minimum width and grade for the drilling rig and pipe trucks. (Reference Forest-wide temporary road standards and guidelines 7700).

Common Variety Minerals

Use of common variety minerals will be permitted.

5100 Fire Management

Suppress fire as necessary to protect other ownerships and human health and safety. On a scale of 1 (high) to 5 (low) the value at risk associated with this management is estimated at "5".

5300 Law Enforcement

Law enforcement will be at a level necessary to enforce existing rules relating to the incidental Forest use and public land laws.

5400 Land Ownership

Surface Ownership

Lands may be exchanged for land needed in other management areas.

7300 Buildings and Structures

Provide buildings and structures only as needed to protect public health and safety.

7400 Public Health and Pollution Control Activities

Water Supply

Drinking water sources will not be developed.

Solid Waste

Emphasize use of the pack-in/pack-out method of disposal.

Use of National Forest System lands for landfill disposal sites should be considered only as a part of an area wide system and only when private lands are not available.

7700 Transportation System

Roads

Permit local roads as needed for access to adjacent management areas, private ownerships, or to protect resources.

All existing unimproved roads will remain open unless causing resource damage.

PROPOSED AND PROBABLE MANAGEMENT PRACTICES

The following is a programmatic summary of Forest outputs by management area. Outputs proposed for the first decade and those projected for the second decade are shown. Within two years after the Plan approval, a multi-year site specific project schedule will be developed. This schedule will show a complete annual Forest program to achieve Forest Plan objectives. All resource programs will be included and linked to the Program Budget Process.

This project schedule will finalize the level of regeneration and intermediate harvest cutting. These cutting levels will correspond to the actual opportunity to achieve the wildlife habitat objectives for the 0-9 year age class of vegetation. An estimate for these activities is shown in the following table for each management area. Also, this implementation analysis will specifically identify the stands and their acreage which will be managed under the uneven-aged silvicultural system. These opportunities are defined by Forest-wide standards and guidelines 2400.

Several programs spread Forest-wide in Table 4-1 are not distributed by management area. These programs relate to road network development, land adjustment and land line survey objectives. Although the transportation system has been mapped it's scheduled accomplishment will be closely correlated to the annual timber sale program. Forest Plan Appendix B, item 1, Three Year Timber Sale Schedule shows short term road objectives by management area. Projections for the balance of the road program by management area will be developed during the project scheduling process to be completed by October 1987.

Scheduling of the land adjustment program on a management area basis is futile. The program is dependent on "willing seller" opportunities which cannot be forecasted. As opportunities are identified Forest-wide, they will be evaluated against the land adjustment standards and guidelines previously presented in this chapter and a program priority determined. The landline survey program is also very sensitive to project development needs. The annual Forest-wide target for survey will be allocated based on the project needs identified in implementation planning and the priorities established by standards and guidelines. The decade objectives stated for land adjustment and property boundary survey are considered a minimum level. This level may be exceeded as funding and opportunity permit.

Table 4-7

MANAGEMENT AREA 3.1

Management Practice	Unit of Measure	MIH Code	Average Annual Amount	
			Proposed in First Decade	Projected in Second Decade
Recreation				
Roaded Natural	MRVD	W07	14.0	15.5
Fish & Wildlife Use	MWFUD	W64	3.3	3.6
Fish & Wildlife Improvement	M Acres	C02	0.1	0.1
Timber <u>1/</u>				
Sawtimber/Products	MMCF (MMBF)	E06	0.04 (0.24)	0.05 (0.30)
Fuelwood	MMCF (MMBF)	E06	0.01 (0.06)	0.02 (0.12)
Regeneration Cut <u>2/</u> (Minimum)	M Acres	E01	0.1	0.1
Sanitation and Salvage	M Acres	E01/E02	<u>3/</u>	<u>3/</u>
Intermediate Cut	M Acres	E02	0. <u>0</u>	0. <u>0</u>
Reforestation (Minimum)	M Acres	E04	0.1	0.1
TSI	M Acres	E05	0.0	0.0

1/ Outputs in terms of Timber Sale Program quantity and includes non-chargeable volume primarily in the form of free fuelwood.

2/ Even-aged system cutting method; clearcut, shelterwood, seed tree to be determined by specific stand prescription.

3/ Acreage will be determined based on need.

Table 4-8

MANAGEMENT AREA 3.2

Management Practice	Unit of Measure	MIH Code	Average Annual Amount	
			Proposed in First Decade	Projected in Second Decade
Recreation				
Roaded Natural	MRVD	W07	76.8	83.6
Fish & Wildlife Use	MWFUD	W64	18.0	19.8
Fish & Wildlife Improvement	M Acres	C02	0.4	0.4
Range Use	MAUM	W67	5.2	6.5
Range Improvement	M Acres	DO3	0.7	0.8
Timber <u>1/</u>				
Sawtimber/Products	MMCF	E06	0.27	0.38
	(MMBF)		(1.62)	(2.28)
Fuelwood	MMCF	E06	0.09	0.12
	(MMBF)		(0.54)	(0.72)
Regeneration Cut				
Clearcut (Minimum) <u>2/</u>	M Acres	E01	0.6	0.6
Shelterwood <u>2/</u>	M Acres	E01	0.1	0.1
Group Selection <u>3/</u>	M Acres	E01	0.8	0.8 <u>4/</u>
Intermediate Cut				
Thinning and Removal <u>2/</u>	M Acres	E02	0.0	0.0
Improvement <u>3/</u>	M Acres	E02	3.5	3.5 <u>4/</u>
Sanitation and Salvage	M Acres	E01/E02	0.1 <u>5/</u>	0.1 <u>5/</u>
Reforestation (Minimum)	M Acres	E04	1.5	0.7 <u>4/</u>
TSI	M Acres	E05	0.2	0.0

1/ Outputs in terms of timber sale program quantity and includes non-chargeable volume primarily in the form of free fuelwood.

2/ Even-aged silvicultural system cutting method.

3/ Uneven-aged silvicultural system cutting method.

4/ The continuation of the uneven-aged silvicultural system will be determined by the evaluation results of first decade application.

5/ Actual sanitation and salvage acreage will be based on need. Acre figure represents distribution of annual average program.

Table 4-9

MANAGEMENT AREA 3.3

Management Practice	Unit of Measure	MIH Code	Average Annual Amount	
			Proposed in First Decade	Projected in Second Decade
Recreation				
Rural	MRVD	W09	380.6	416.3
Fish & Wildlife	MWFUD	W64	74.8	74.6
Use				
Fish & Wildlife	M Acres	C02	0.7	0.8
Improvement				
Range Use	MAUM	W67	8.8	10.8
Range Improvement	M Acres	D03	1.2	1.4

Table 4-10

MANAGEMENT AREA 3.4

Management Practice	Unit of Measure	MIH Code	Average Annual Amount	
			Proposed in First Decade	Projected in Second Decade
Recreation				
Roaded Natural	MRVD	W07	466.2	513.2
Fish & Wildlife Use	MWFUD	W64	182.1	233.7
Fish & Wildlife Improvement	M Acres	C02	3.3	3.9
Range Use	MAUM	W67	16.6	21.4
Range Improvement	M Acres	DO3	2.2	2.8
Timber <u>1/</u>				
Sawtimber/Products	MMCF	E06	3.72	7.42
	(MMBF)		(22.32)	(44.52)
Fuelwood	MMCF	E06	1.17	2.34
	(MMBF)		(7.02)	(14.04)
Regeneration Cut				
Clearcut (Minimum) <u>2/</u>	M Acres	E01	3.2	3.2
Shelterwood <u>2/</u>			0.5	
Group Selection <u>3/</u>	M Acres		<u>4/</u>	<u>5/</u>
Intermediate Cut		E02		
Thinning and Removal				
(Maximum) <u>2/</u>	M Acres		7.2	16.0
Improvement <u>3/</u>	M Acres		<u>4/</u>	<u>5/</u>
Sanitation and Salvage	M Acres	E01/E02	0.6 <u>6/</u>	0.6 <u>6/</u>
Reforestation	M Acres	E04	3.7 <u>4/</u>	3.7 <u>5/</u>
TSI	M Acres	E05	1.4	10.0

- 1/ Output in terms of Timber Sale Program quantity and includes non-chargeable volume primarily in the form of free fuelwood.
- 2/ Even-aged silvicultural system cutting method.
- 3/ Uneven-aged silvicultural system cutting method.
- 4/ Uneven-aged application will be determined by stand specific prescriptions based on Forest-wide standards and guidelines 2400.
- 5/ The continuation of the uneven-aged management system will be determined by the evaluation results of first decade application.
- 6/ Sanitation and salvage cuts will be based on need. Acreage figure is proportion of estimated average annual program.

Table 4-11

MANAGEMENT AREA 4.1

Management Practice	Unit of Measure	MIH Code	Average Annual Amount	
			Proposed in First Decade	Projected in Second Decade
Recreation				
Roaded Natural	MRVD	W07	367.0	394.6
Fish & Wildlife Use	MWFUD	W64	107.6	116.8
Fish & Wildlife Improvement	M Acres	C02	2.4	2.5
Timber <u>1/</u> Sawtimber/Products	MMCF (MMBF)	E06	8.85 (53.10)	10.48 (62.88)
Fuelwood	MMCF (MMBF)	E06	2.80 (16.80)	3.31 (19.86)
Regeneration Cut				
Clearcut (Minimum) <u>2/</u>	M Acres	E01	3.3	3.3
Shelterwood <u>2/</u>	M Acres		0.6	0.6
Seedtree <u>2/</u>	M Acres		0.2	0.2
Group Selection <u>3/</u>	M Acres		<u>4/</u>	5/
Intermediate Cut Thinning and Removal (Maximum) <u>2/</u>	M Acres	E02	12.1	14.5
Improvement <u>3/</u>	M Acres		<u>4/</u>	<u>5/</u>
Sanitation and Salvage	M Acres	E01/E02	0.5 <u>6/</u>	0.5 <u>6/</u>
Reforestation	M Acres	E04	4.1 <u>4/</u>	4.1 <u>5/</u>
TSI	M Acres	E05	1.2	4.0

1/ Outputs in terms of Timber Sale Program quantity and includes non-chargeable volume primarily in the form of free fuelwood.

2/ Even-aged silvicultural system cutting method.

3/ Uneven-aged silvicultural system cutting method.

4/ Uneven-aged application will be determined by stand specific prescriptions based on Forest-wide standards and guidelines 2400.

5/ The continuation of the uneven-aged management system will be determined by the evaluation results of first decade application.

6/ Sanitation and salvage cuts will be based on need. Acreage figure is proportion of estimated average annual program.

Table 4-12

MANAGEMENT AREA 5.1

Management Practice	Unit of Measure	MIH Code	Average Annual Amount	
			Proposed in First Decade	Projected in Second Decade
Wilderness(Primitive ROS)	MRVD	W33	15.3	27.2
Fish & Wildlife Use	MWFUD	W64	16.6	14.5

Table 4-13

MANAGEMENT AREA 6.1

Management Practice	Unit of Measure	MIH Code	Average Annual Amount	
			Proposed in First Decade	Projected in Second Decade
Recreation				
Semi-Primitive Nonmotorized	MRVD	W03	26.8	29.3
Fish & Wildlife Use	MWFUD	W64	20.3	19.4
Fish & Wildlife Improvement	M Acres	C02	0.4	0.4
Timber <u>1</u> / Sawtimber/Products	MMCF (MMBF)	E06	0.10 (0.60)	0.11 (0.66)
Fuelwood	MMCF (MMBF)	E06	0.03 (0.18)	0.03 (0.18)
Regeneration Cut				
Clearcut (Minimum) <u>2</u> / Shelterwood <u>2</u> / Group Selection <u>3</u> / Intermediate Cut	M Acres M Acres M Acres	E01	0.2 <u>4</u> / 0.4	0.2 <u>4</u> / 0.4 <u>5</u> / E02
Thinning and Removal <u>2</u> / Improvement <u>3</u> / Sanitation and Salvage	M Acres M Acres M Acres	E01/E02	0 2.0 0.1 <u>6</u> / 0.6 <u>4</u> / 0.1	0 2.0 <u>5</u> / 0.1 <u>6</u> / 0.2 <u>5</u> / 0.3
Reforestation	M Acres	E04	0.6 <u>4</u> / 0.1	0.2 <u>5</u> / 0.3
TSI	M Acres	E05	0.1	0.3

- 1/ Output in terms of Timber Sale Program quantity and includes nonchargeable volume primarily in the form of free fuelwood.
- 2/ Even-aged silvicultural system cutting method.
- 3/ Uneven-aged silvicultural system cutting method.
- 4/ Uneven-aged application will be determined by stand specific prescriptions based on Forest-wide standards and guidelines 2400.
- 5/ The continuation of the uneven-aged management system will be determined by the evaluation results of first decade application.
- 6/ Sanitation and salvage cuts will be based on need. Acreage figure is proportion of estimated average annual program.

Table 4-14

MANAGEMENT AREA 6.2

Management Practice	Unit of Measure	MIH Code	Average Annual Amount	
			Proposed in First Decade	Projected in Second Decade
Recreation				
Semi-Primitive Motorized	MRVD	W05	92.4	101.1
Fish & Wildlife Use	MWFUD	W64	69.9	66.9
Fish & Wildlife Improvement	M Acres	C02	1.5	1.5
Range Use	MAUM	W67	6.8	3.4
Range Improvement	M Acres	DO3	0.9	0.4
Timber <u>1/</u>				
Sawtimber/Products	MMCF (MMBF)	E06	0.38 (2.28)	0.40 (2.40)
Fuelwood	MMCF (MMBF)	E06	0.12 (0.72)	0.13 (0.78)
Regeneration Cut				
Clearcut (Minimum) <u>2/</u>	M Acres	E01	1.0	1.0
Shelterwood <u>2/</u>	M Acres		0.2	0.2
Group Selection <u>3/</u>	M Acres		<u>4/</u>	5/
Intermediate Cut		E02		
Thinning and Removal <u>2/</u>	M Acres		0	0
Improvement <u>3/</u>	M Acres		3/	5/
Sanitation and Salvage	M Acres	E01/E02	0.2 <u>5/</u>	0.2 <u>6/</u>
Reforestation	M Acres	E04	1.3 <u>4/</u>	1.3 <u>5/</u>
TSI	M Acres	E05	0.7	1.2

- 1/ Output in terms of Timber Sale Program quantity and includes non-chargeable volume primarily in the form of free fuelwood.
- 2/ Even-aged silvicultural system cutting method.
- 3/ Uneven-aged silvicultural system cutting method.
- 4/ Uneven-aged application will be determined by stand specific prescriptions based on Forest-wide standards and guidelines 2400.
- 5/ The continuation of the uneven-aged management system will be determined by the evaluation results of first decade application.
- 6/ Sanitation and salvage cuts will be based on need. Acreage figure is proportion of estimated average annual program.

Table 4-15

MANAGEMENT AREA 6.3

Management Practice	Unit of Measure	MIH Code	Average Annual Amount	
			Proposed in First Decade	Projected in Second Decade
Recreation				
Roaded Natural	MRVD	W07	3.7	3.7
Fish & Wildlife Use	MWFUD	W64	1.0	1.0

Table 4-16

MANAGEMENT AREA 8.1

Management Practice	Unit of Measure	MIH Code	Average Annual Amount	
			Proposed in First Decade	Projected in Second Decade
Recreation				
Roaded Natural	MRVD	W07	41.1	48.6
Fish & Wildlife Use	MWFUD	W64	32.7	32.3
Fish & Wildlife Improvement	M Acres	C02	0.2	0.3

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MANAGEMENT AREA 9.1

Management Practice	Unit of Measure	MIH Code	Average Annual Amount	
			Proposed in First Decade	Projected in Second Decade
Recreation				
Roaded Natural	MRVD	W07	1.3	2.1
Fish & Wildlife Use	MWFUD	W64	1.4	1.4

Vegetative Management Practices Associated with Vegetative Manipulation

The major vegetative management practices utilized on the Forest are described below.

Regeneration Harvest - Regeneration harvests are the removal of trees to assist regeneration already present or to initiate the regeneration process.

Clearcutting - Clearcutting is the harvesting in one cut of all trees on an area for the purpose of creating a new, even-aged stand. The area harvested may be a patch, stand, or strip large enough to be mapped or recorded as a separate age class in planning for sustained yield. Regeneration is obtained through natural seeding, through sprouting of trees that were in or under the cut stand, or through planting or direct seeding.

Selection Cut - Selection cutting is the technique for implementing the uneven-aged silvicultural system. Cuts may remove individual tree or groups of trees creating 0.25 to 2 acre patches within a larger stand. This type of cutting perpetuates a high forest cover while the stand is composed of trees representing many size and age classes.

Intermediate Harvests and Other Changes - This activity includes changes concerning any removal of trees between the time of stand establishment and the final harvest. Specific cuts are identified below.

Thinning Cut - A thinning cut is made to harvest excess or unwanted trees in an immature stand. This cutting reduces the stand to a recommended stocking level. It is made to accelerate or maintain the rate of diameter increment, to improve the average form of the trees that remain, and harvest usable fiber. The harvest of excess trees should remove existing and predicted mortality in addition to improving the growing conditions for the remaining stems.

Improvement Cut - This type of intermediate cut is used in conjunction with the uneven-aged silvicultural system. It is designed to achieve stand structure objective relative to age class distribution and species composition.

Sanitation Cut (Salvage) - Sanitation cutting is the removal of dead, dying, deteriorating, or susceptible trees to promote forest hygiene and to recover trees materially damaged by fire, wind, insects, fungi, or other injurious agents.

Special Cut - Special cutting is the removal of trees for other than silvicultural purposes. This applies to areas not suited for timber production such as developed recreation and administrative sites where other uses or other values are overriding.

Timber Stand Improvement - This activity comprises all noncommercial intermediate cuttings and other treatments to improve the composition, constitution, condition, and increment of a timber stand. Included are the specific activities: precommercial thinning, release and weeding, pruning, and fertilizing of established stands. Other specific activities supporting timber stand improvement are control of understory vegetation and animal control measures.

Timber management practices are discussed in more detail in Forest Plan Appendix D - Harvest Methods.

Reforestation - This activity comprises all treatments and activities aiding the reestablishment of a tree crop or tree cover on forested land. It includes the preparation of the ground surface prior to natural seedfall, natural sprouting, artificial seeding, or planting. It also includes the setting out of seedlings, cuttings, or transplants, and the scattering or placement of seed over a designated area for the re-establishment of a forest stand.

Wildlife Habitat Improvement, Non-Structural - This activity includes improvements such as the clearing or reduction of tree or browse cover to increase forage, creating or maintaining plant successional stages and establishing vegetation to provide food or cover.

Range improvement - This activity includes all work required for revegetation, range plant control and initial forage improvement.

These practices can vary in timing, intensity and sometimes in method of implementation. Basically, these practices are applicable to the central hardwoods, shortleaf pine and eastern redcedar stands found on the Forest.

In addition, a variety of Forest Service practices have the potential to alter existing vegetation. Some of these would be road construction, trail construction, development of recreation sites and administrative sites.

Management direction found in the standards and guidelines provided earlier in this chapter govern the application of the individual practices by management prescription area.