

United States
Department of
Agriculture

Forest Service
Southern Region



Arkansas

Land and Resources Management Plan

Ozark- St. Francis

National
Forests



PREFACE

The Ozark-St. Francis National Forests Land, and Resource Management Plan (Plan) provides a **management** program that allows Forest resource **use** and protection; fulfills legislative requirement, and addresses local, regional, and national issues and concerns. The Forest Plan **accomplishes** the **following—**

- ESTABLISHES TEN TO FIFTEEN YEAR FOREST MANAGEMENT DIRECTION, LONG-RANGE GOALS AND OBJECTIVES;**
- SPECIFIES MANAGEMENT REQUIREMENTS, APPROXIMATE TIMING AND VICINITY OF PRACTICES FOR THAT DIRECTION; and**
- ESTABLISHES MONITORING AND EVALUATION REQUIREMENTS FOR COMPLIANCE AND TO DETERMINE ACCURACY OF PREDICTED EFFECTS.**

Plan reviews (and updates, if necessary) will occur at least every five years with revisions on a ten to fifteen year cycle.

Forest and Rangeland Renewable Resources Planning Act (**RPA**), as amended by National Forest Management Act (**NFMA**) requires Plan preparation. National Environmental Policy Act (**NEPA**) AND **NFMA** 36 Code of Federal Regulations (**CFR**) **219** require assessment of its environmental **impacts**. The Plan replaces all previous Forest resource management **plans**.

PUBLIC REVIEW AND APPEAL RIGHTS

An appeal of the Plan and **Environmental** Impact Statement is limited to the period after a Record of Decision.

If any provision of this Plan or application thereof to any person or circumstances is held invalid, the rest of the Plan and application of its provision to other persons or circumstances shall not be affected.

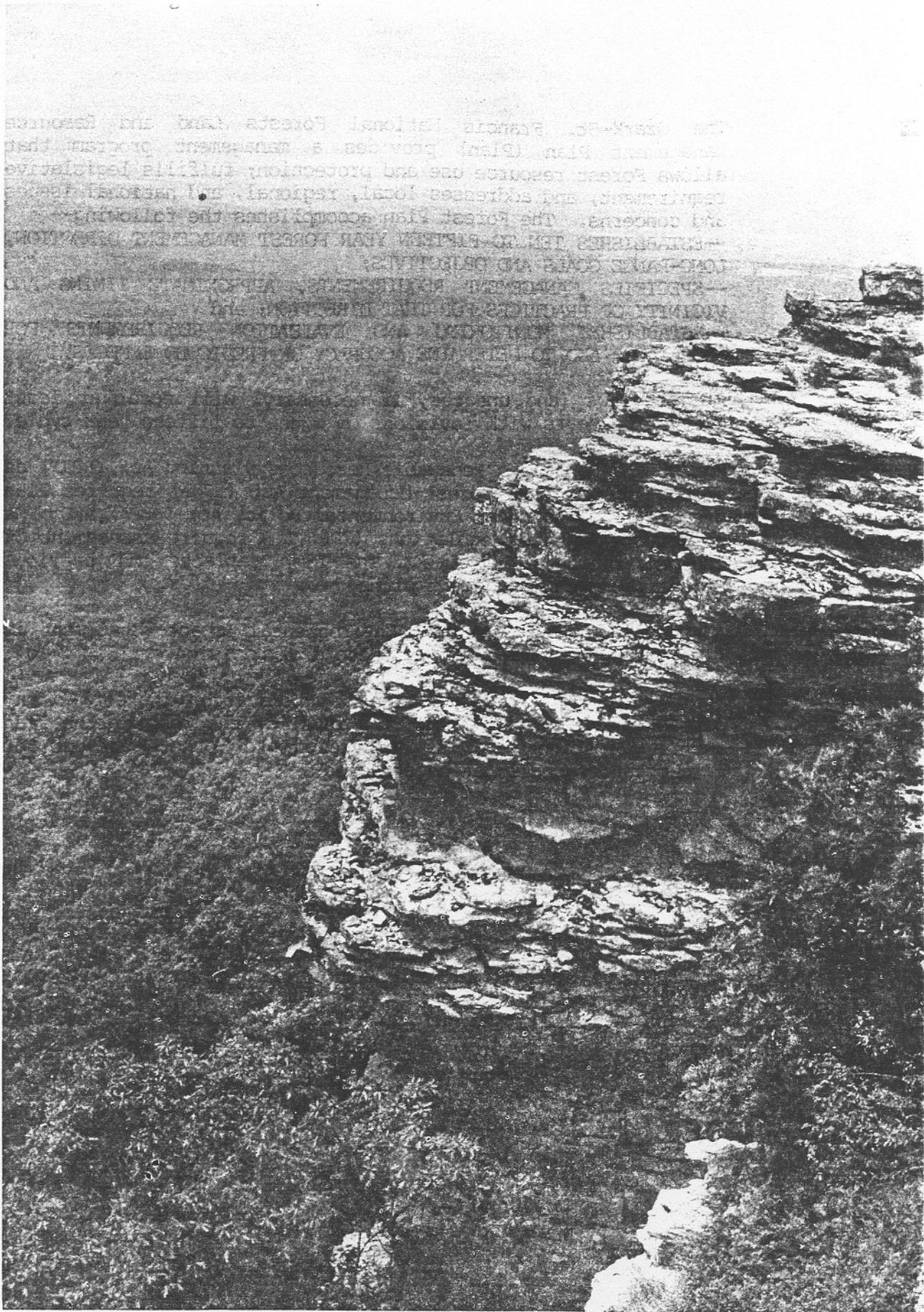


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Introduction

PURPOSE OF THE PLAN

The Plan guides natural resource management activities, establishes management requirements for Ozark-St. Francis National Forests and describes resource practices, management levels and land suitability for resource management.

The Plan embodies National Forest Management Act (NFMA) provisions, regulations, and other guiding documents. Land allocation, prescriptions, and management requirements provides Plan direction; however, production, services, and implementation rates depend on annual budgeting.

RELATIONSHIP OF THE PLAN TO OTHER DOCUMENTS

Plan development occurs within Forest Service regional and national planning framework. The Resource Planning Act (RPA) program sets national direction and tentative production levels for National Forest System lands based on suitability and capability of each Forest Service Region. Each Region allocates its share of national production levels based on Forest information. Final production levels are subject to funding.

The Plan is the selected alternative from the accompanying Environmental Impact Statement (EIS). The planning process and analysis procedure used to develop this Plan and other alternatives are described in the EIS.

Coordination Requirements

Activities and projects to carry out Plan direction will be "tiered" to the EIS (40 CFR 1502.20). Local project environmental analyses will use data and evaluations in the Plan and EIS along with additional site specific data as their base.

PLAN STRUCTURE

The Plan provides two direction levels—
 —general Forestwide direction including goals, objectives and management requirements.
 —management area direction as management requirements.

Plan structure is:

Chapter 1 introduces the Forest Planning process.

Chapter 2 summarizes Analysis of the Management Situation including—

- current Forest program assessment.
- Goods and service production potential.
- Forest resources demand.
- issues, management concerns, and opportunities (ICO's) addressed by this management direction.

Chapter 3 discusses how the Plan addresses ICO's.

Chapter 4 contains Forestwide goals, objectives and management requirements and expected activities.

Chapter 5 presents Plan implementation, monitoring and evaluation requirements to indicate how well Plan direction meets targets, goals, and objectives. This chapter also guides project planning, amendments or revisions.

Chapter 6 (glossary) References Chapter 7, EIS.

Chapter 7, appendix presents activity schedules for other resources and a ten year timber sale action plan.

More supporting information is in Forest Planning records, available for review at Ozark-St. Francis National Forest Supervisor's Office, Russellville, Arkansas.

FOREST DESCRIPTION

Figure 1-1 shows Ozark-St. Francis National Forests location in Arkansas. The Ozark has six geographical units in northwest Arkansas. The St. Francis is a single geographic unit in eastern Arkansas adjacent to St. Francis and Mississippi Rivers, 50 miles southwest of Memphis, Tennessee.

Ozark National Forest units are Wedington, Lee Creek, Main Division, Magazine, Sylamore, and Henry R. Koen Experimental Forest, containing 1,118,500 National Forest acres in Baxter, Benton, Conway, Crawford, Franklin, Johnson, Logan, Madison, Marion, Newton, Pope, Searcy, Stone, Van Buren, Washington, and Yell Counties. St. Francis contains 20,900 National Forest acres in Lee and Phillips Counties.

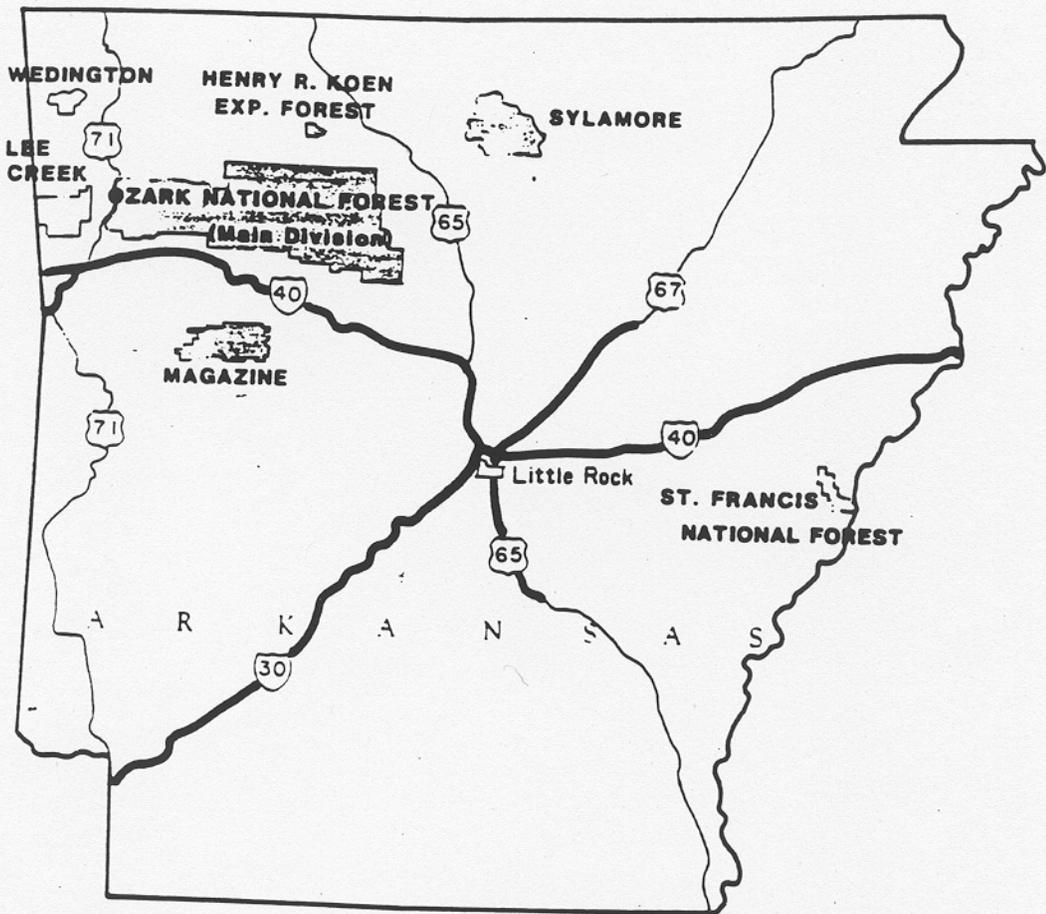
The Forest Supervisor in Russellville, Arkansas administers Ozark-St. Francis National Forests.

The Ozark has six Ranger Districts: Bayou headquartered in Hector; Boston Mountain in Ozark; Buffalo in Jasper; Magazine in Paris; Pleasant Hill in Clarksville; and Sylamore in Mountain View. St. Francis is one District headquartered at Marianna, Arkansas. Each of these is administered by a District Ranger.

The Ozark also includes Cass Civilian Conservation Corps Center at Cass, Arkansas.

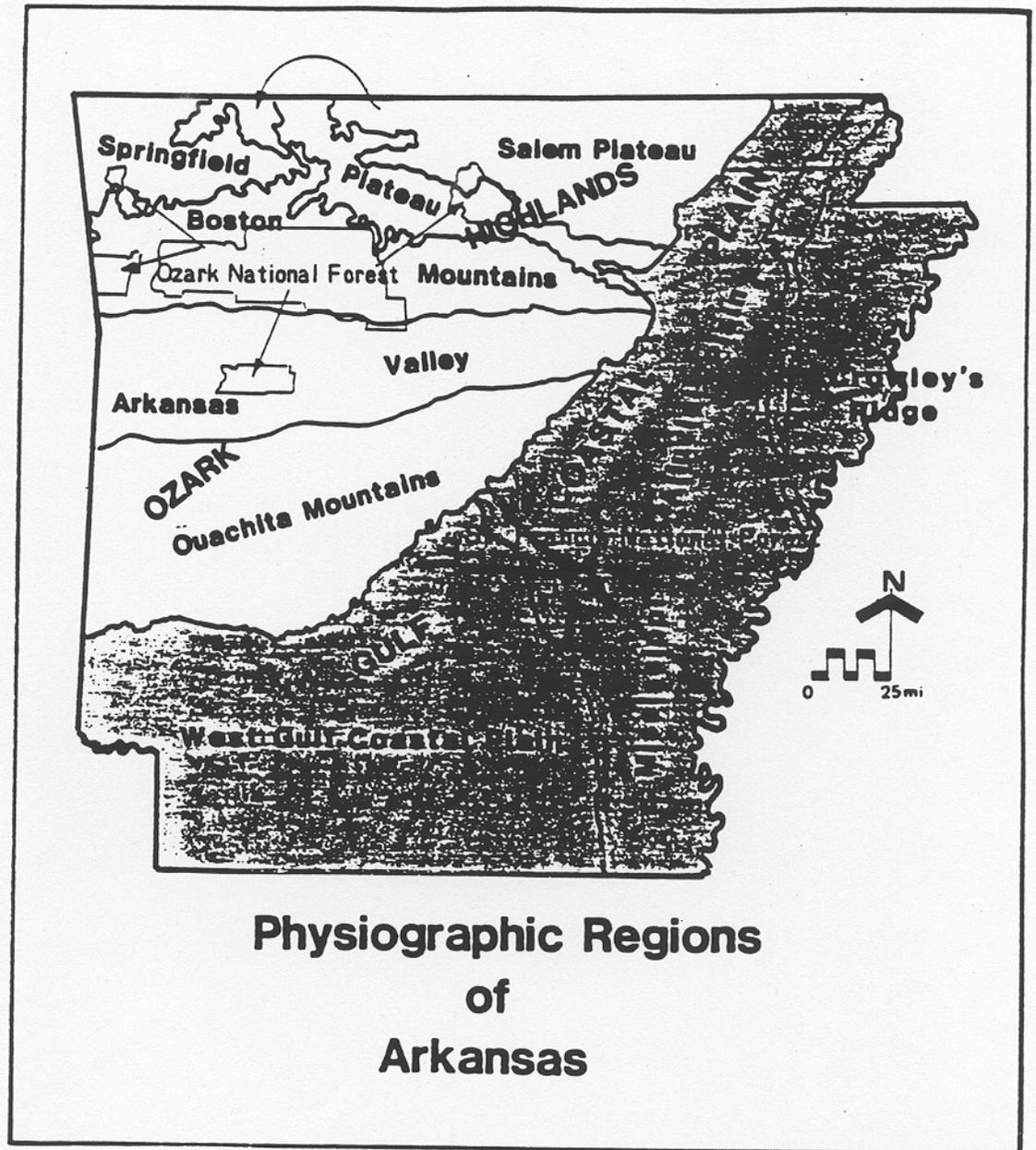
Figure 1-2 shows Forest's location within physiographic regions.

FIGURE 1-1



**VICINITY MAP
FOR THE
OZARK-ST. FRANCIS NATIONAL FORESTS**

FIGURE 1-2



Analysis of the Management Situation

OVERVIEW

This chapter summarizes supply and demand conditions for market and non-market goods and services in the planning area and research needs. Table 2-1 identifies the Forests' ability to supply goods and services compared to demands and current resource production levels.

More detailed management situation analysis is in Plan, Chapter 3; Plan Appendix A, Table A-1, Appendix B; and Ozark-St. Francis National Forests Analysis of the Management Situation (AMS).

SUPPLY AND DEMAND CONDITIONS

Although this Plan covers 10 years, the AMS analyzes supply and demand for 50-years to determine long-term capability to meet projected demand. A horizontal demand curve is assumed for all resources. This assumption indicates that resources could increase or decrease within a defined range without affecting value.

Recreation

The 29 developed recreation sites, ranging from 5 unit semi-primitive camps to Blanchard Springs Caverns accommodate about 7,800 people at one time.

Recreation Opportunity Spectrum (ROS) inventory determined the following:

<u>ROS CLASS</u>	<u>N.F. M. ACRES *</u>	<u>PERCENT</u>	<u>CAPACITY MRVD'S**</u>	<u>USE MRVD'S</u>
Primitive	0	0	0	0
Semi-Primitive				
Non-Motorized	71	6	200	13
Semi-Primitive				
Motorized	400	35	1,540	282
Roaded Natural	663	58	8,122	585
Rural	6	1	535	350
Urban	0	0	0	0
Totals	<u>1,140</u>	<u>100</u>	<u>10,397</u>	<u>1,230</u>

*M.ACRES - Thousand Acres

**MRVD's - Thousand Recreation Visitor Days

Three trails including the 140-mile Ozark Highlands Trail, are designated as National Recreation Trails.

Hang gliding, canoeing, kayaking, all-terrain vehicle driving, rock climbing and rappelling are new and increasing recreation

activities. Concern for new recreation sites includes a major complex on Mt. Magazine.

Several state and other federal recreation facilities within the Forests' influence zone provide an adequate supply to meet most future recreational demands. See Table 2-1 for recreation use demand.

Wild and
Scenic Rivers

The U. S. Department of Interior, in cooperation with state and local agencies, has developed a Nationwide River Inventory for potential national classification. EIS Appendix C, describes the process and stream characteristics. The 13 rivers and streams having National Forest ownership along one or both sides and their eligibility determinations are shown in EIS Table 2-18. Preliminary evaluation determined four rivers and their segments eligible for Wild, Scenic or Recreation River study by Forest Service.

Cultural
And
Historic

Cultural resource sample surveys, complete on 4-5% of the Forest, recorded 212 sites including prehistoric hunting, resource gathering, occupation area, bluff shelter, rock art sites and 52 homestead, industrial, Civilian Conservation Corps camp, cemetery, stage station and school historic period sites. Information from Forest workers and local residents resulted in recording 530 more prehistoric and 70 historic period sites. Many appear eligible for National Register listing.

River bottoms and blufflines are high potential zones for prehistoric resources. River bottoms and upland slopes are high potential zones for historic period sites. These zones are high priority for intensive survey.

Present sample surveys indicate about one historic period site per 800 acres, and one prehistoric site per 200 acres. Within 1,095,400 acres remaining to be sampled, predictions indicate 1,300 historic and 5,500 prehistoric sites. Predicted site density is expected to change as survey methods improve.

Visual

All variety classes occur on the Forests, with 8 percent variety class A (Distinctive); 80 percent variety class B (Common); and 12 percent variety class C (Minimal).

Initial scenic resource inventory combining visual attractiveness (variety class) and public expectations, resulted in visual quality objectives as follows—

—Preservation	67,200 Acres
—Retention	111,400 Acres
—Partial Retention	289,500 Acres
—Modification	553,400 Acres
—Maximum Modification	117,900 Acres

Research
Natural
Area

A 400-acre Turkey Ridge Research Natural Area on the St. Francis is nominated and will be managed in an undisturbed status. It has 90-100 year-old white oak - red oak - hickory (SAF Type 52) and swamp chestnut oak - cherrybark oak (SAF Type 91) stands.

Wilderness

The Arkansas Wilderness Act of 1984 established 15,200-acre Hurricane Creek, 11,800-acre Richland Creek, 10,800-acre East Fork, 17,000-acre Leatherwood Wildernesses and added 1,500 acres to the 10,500-acre Upper Buffalo Wilderness.

Roadless areas not designated Wilderness are released for other uses.

Annual wilderness capacity in the five areas now is about 133,600 visitor days. Ozark Wilderness areas established in October, 1984, have a combined 11,500 visitor day use. Based on regional demand projections, visitor day use will be 48,000 in 2030.

Wildlife
And
Fish

At least 65 of the 74 mammal species occurring in Arkansas are found on the Forests.

Threatened and endangered species, occasionally seen on the Forests include bald eagles and rare reported sightings of Florida panthers. Indiana and Gray Bats occur in several Sylamore District caves, and a small Ozark Big-eared Bat population hibernates near the Ozark. Sixteen young American Alligators were released on the St. Francis in 1979 to reestablish this species.

Management indicator species selected to estimate management activity effects on wildlife populations, habitat requirements and reasons for selection are shown in EIS Table 3-4.

Hunting fluctuates with game population changes.

The fishery is warm and cold water streams and lakes, however, most fishing use occurs in large lakes and rivers off the Forests, but projections indicate Forest use should stabilize around 60,000 annual user days.

No threatened or endangered fish species occur on the Forests.

Range

The Forests are divided into 157 allotments for management purposes. Only ninety-five are active.

Suitable range is mostly on ridgetops, along streams, in old fields and along benches in pine. Bottomland sites have moderate to high forage production and slight to moderate erosion hazard.

A downward trend in permittee and livestock numbers over the last 5 years is due to inefficiency of woodland grazing, increased grazing fees and term permit requirements.

Demand includes livestock owners in and adjacent to Forests.

Vegetation

Oak-hickory forest types dominate and develop best on north east-facing slopes and along drainages. Hardwoods occupy 65 percent, while shortleaf pine and shortleaf pine-oak occupy 35 percent of the land. Cedar glades and scrub hardwood stands occur on rocky shallow soil areas.

Native and domestic grasses occur on pastures and in semi-forest conditions.

While no Federal threatened or endangered plant species occur on the Forests; nine plants are now under review for possible listing. Ten plants found on the Forests are also on threatened and endangered lists. Arkansas Natural Heritage Commission has identified "species of special concern" for protection on the Forests.

Timber

Four working groups and rotations are: Pine, 80 year hardwood, 100 years on the Ozark and 80 years on the Francis; Old Growth, 200 years; and Marginal, no rotation.

Primary silvicultural cutting methods are: intermediate stand improvement; and clearcut, seedtree, and shelterwood regeneration.

Average annual Ozark-St. Francis harvest between 1977-1982 7.0 MMCF. About 85% of this annual cut was pine and hardwood. About half the pine was sawtimber and poletimber. Most hardwood was sawtimber.

Markets vary according to timber species. Pine markets more local than hardwood markets which range up to 100 miles from the Forests.

The estimated million cubic foot product demand by decade the Forests is:

<u>Product</u>	1981 <u>1990</u>	1991 <u>2000</u>	2001 <u>2010</u>	2011 <u>2020</u>	202 <u>203</u>
Pine Sawtimber	34.5	49.8	84.2	92.3	94.
Pine Small Roundwood	32.1	54.9	97.1	131.5	144.
Hardwood Sawtimber	9.4	14.3	23.6	30.6	32.
Hardwood Small Roundwood	2.3	4.3	8.4	12.3	15.
TOTAL	<u>78.3</u>	<u>123.3</u>	<u>213.3</u>	<u>266.7</u>	<u>286.</u>

Soils

Ozark Forest soils vary from deep to shallow clayey and loam to very deep cherty and silty loams. Soil problems include surface compaction, erosion, droughtiness, infertility, landslide potential.

St. Francis Forest soils are deep silt loams and deep stratified clays and loams which are productive and have high moisture holding capacity. Gully erosion, piping, compaction and high shrink-swell ratios exist in these soils.

Hydrological conditions in forested areas are stable or trending upward, but about 215 Forest acres need watershed improvement and maintenance.

Water

About 1000 stream miles are perennial. The Forests' average total annual water flow is estimated at 1,774,000 acre feet.

The Forest Service controls all or part of the shoreline on 16 lakes and controls 9 of these lakes. These 16 lakes contain over 2,800 surface acres and 62,200 acre feet normal storage volume.

About 31,000 acres (3 percent) are in the 100-year floodplain and 24,000 acres in perennial stream riparian management zones. About 1/2 of the riparian zone is common with the 100-year floodplain. No true wetlands exist.

Stream use includes canoeing, kayaking, fishing, domestic water supplies, wildlife and fish habitat, swimming, livestock use and aesthetics.

In Arkansas riparian doctrine and judicial system govern both surface and groundwater uses. The State is now studying comprehensive water law needs.

Air

Northern Arkansas air quality is better than National Ambient Air Quality Standards (NAAQS). No major industrial developments or large cities are near to the southwest, west or northwest to allow prevailing winds to pollute the air. Occasionally, northeast winds continue long enough to pollute the air from the northeastern United States.

Stagnant summer air masses, high humidity and temperature cause poor visibility; however, inversions limiting smoke dispersal are seldom a problem.

Minerals

Minerals production consists of natural gas, surface stone, and shale gravel. U. S. owned oil and gas rights to most National Forest lands are leased or under lease application. The Forests have no active mines.

The Forest had over 60 producing gas wells in June 1982 within Forest boundaries, about 45 percent on Forest land.

Annually about 3,500 tons of surface stone are sold and used locally. The market area extends to surrounding states.

About 35,000 tons of Ozark shale and gravel are used annually for surfacing Forest Service and other public roads in the Forest.

Based on national demands for energy minerals and known mineral potential of the Forests, natural gas exploration and production will continue for at least the next 10 year. Shale, gravel and crushed stone production is expected to increase to meet local and inservice demand.

Rural Community
And
Human Resources

The Forests participate in 5 human resource programs: Senior Community Service Employment Program (SCSEP), Youth Conservation Corps (YCC), Job Corps (JC), Volunteers and Host programs.

Population

The population lives in mostly rural areas with small communities centered around country stores selling dry goods, food seed and gasoline.

Arkansas' average annual growth rate between 1970 and 1980 was 1.7%. Persons 65 and over increased 32% during the same period and account for 13.7% of the state population. Total population in 1980 was 2,285,500.

Approximate percentage by race is: white - 83; black - 16; American Indian - 0.4; Asian - 0.3; and other - 0.3. In the 16 counties within Ozark National Forest land, minority population is less than 4%. In the two St. Francis Counties (Phillips and Lee), minority population is about 55%.

Tourism and retirement economy segments have increased demand for service trades. This situation is more closely associated with the mountainous region which has a large tourist and retirement population.

Lands

St. Francis area labor and industry is based on agriculture, timber, grazing and recreation. National Forest acreage increases about 1,230 acres per year, mostly through purchases.

The 10-year program for National Forest lands available for exchange is about 80 acres on the St. Francis and 8,000 acres on the Ozark.

Most needed rights-of-way are acquired on the St. Francis, but about 200 more rights-of-way are needed on the Ozark.

There are over 3,400 property line miles and 11,300 corners between National Forest lands and other owners. About half are accurately located and marked.

Special Uses

The Forests had 252 non-recreation special uses and recreation special uses, including 52 summer homes on the St. Francis, on September 30, 1981. Various documents authorize different kinds of non-recreation uses. These uses require about 4,500 acres and right-of-way 630 miles.

Roads

The Forests' road network includes state, county and forest development roads. This road system is about complete, but some roads are inadequate for projected traffic. Timber access roads have been the dominant factor in recent road reconstruction and construction.

Traffic service levels are 1% "A", providing free flowing traffic with adequate passing opportunities; 25% "B"; 30% "C" and 44% "D", providing difficult two-way traffic, possibly slowed or obstructed by activities.

The existing road system has about 4,000 miles, including about 2,800 inventoried miles and about 1,200 uninventoried old woods road miles. Ninety-one percent of the managed roads are for constant use while 9% provide only periodic use and are closed between use periods. Half of the reconstructed or new roads are operated for intermittent service.

Fire

Heavy fuel concentrations seldom occur, but pine or pine-hardwood stands produce fine, flashy, ground fuels. Good road access and intermingled private ownership patterns contribute to frequent hunter camp fire use, debris burning and land clearing, increasing potential fire damage and frequency.

Prescribed burning is used on 4,000 to 5,000 acres annually to improve wildlife habitat, range and timber stands.

Insects And Disease

Endemic pest damage has been low with no epidemic outbreaks. Some pest caused timber mortality is salvaged annually during routine harvests.

Supply and Demand

Table 2-1 displays supply, potential supply, resource demand, and compares these values with Regional and Plan objectives.

TABLE 2-1

Current Production, Projected Demand and Supply Potential

Activity	Category	Unit of Measure Average Per Year	1981 Level	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021- 2030
RECREATION								
Developed Use	Current Management	Thousand RVDs *	485	528	610	685	742	841
	Assigned Regional Objective			494	509	567	682	806
	Demand Trends			552	690	853	1,007	1,150
	Supply Potential			1,100	1,125	1,175	1,210	1,272
	Plan Objective				552	690	853	1,007
Dispersed Use	Current Management	Thousand RVDs **	740	809	888	1,001	1,113	1,284
	Assigned Regional Objective			677	677	706	1,328	1,451
	Demand Trends			881	1,029	1,231	1,466	1,739
	Supply Potential			10,280	11,304	12,328	13,352	14,376
	Plan Objective				853	1,017	1,199	1,377

* Recreation Visitor Days

** Includes Hunting and Fishing

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TABLE 2-1, continued

Current Production, Projected Demand and Supply Potential

Activity	Category	Unit of Measure Average Per Year	1981 Level	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021- 2030
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WILDERNESS

Wilderness Use	Current Management	Thousand RVDs	2	11.5	16.1	22.5	29.3	32.2
	Assigned Regional Objective			No Regional Objective				
	Demand Trends			14.0	22.4	30.0	39.5	48.0
	Supply Potential			133.6	133.6	133.6	133.6	133.6
	Plan Objective			14.0	22.4	30.0	39.5	48.0

WILDLIFE

Hunting & Fishing Use		Thousand Wildlife & Fish User Days						
	Current Management		262	339	376	416	454	552
	Assigned Regional Objective			Target	Included in	Dispersed	Recreation Use	
	Demand Trends			349	387	422	457	531
	Supply Potential			367	403	446	483	563
	Plan Objective			349	387	422	457	531

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TABLE 2-1, continued

Current Production, Projected Demand and Supply Potential

Activity	Category	Unit of Measure Average Per Year	1981 Level	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021- 2030
RANGE								
Grazing Use	Current Management	Thousand AUMs*	35	35	36	35	34	35
	Assigned Regional Objective			49	50	50	51	51
	Demand Trends			48	50	50	51	51
	Supply Potential			73	75	76	76	77
	Plan Objective			30	30	30	30	30
TIMBER								
Programmed Sales	Current Management	Million Cubic Feet	7.4	7.7	7.7	9.4	10.6	11.4
	Assigned Regional Objective			7.8	12.3	21.3	26.7	28.7
	Demand Trends			7.8	12.3	21.3	26.7	28.7
	Supply Potential			11.7	17.5	26.3	35.5	35.4
	Plan Objective			9.6	12.0	15.0	18.7	21.7
		Softwood			6.2	7.1	9.1	12.1
	Hardwood			3.4	4.9	5.9	6.6	6.9

TABLE 2-1, continued

Current Production, Projected Demand and Supply Potential

Activity	Category	Unit of Measure Average Per Year	1981 Level	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021- 2030
TIMBER, continued								
Reforestation	Current Management	Thousand Acres	8.2	3.5	3.8	4.2	4.7	5.3
	Assigned Regional Objective			7.7	7.7	7.7	7.7	8.0
	Plan Objective			5.2	4.8	4.9	7.1	14.0
Timber Stand Improvement	Current Management	Thousand Acres	10.9	4.1	3.9	5.2	4.2	6.7
	Assigned Regional Objective			9.1	10.2	10.2	10.2	10.2
	Plan Objective			11.3	6.8	9.8	6.8	10.0
WATER								
Meeting Quality Standards	Current Management	Million Acre Feet	1.8	1.8	1.7	1.7	1.7	1.7
	Assigned Regional Objective			1.5	1.5	1.5	1.5	1.5
	Demand Trends			1.5	1.5	1.5	1.5	1.5
	Supply Potential			1.8	1.8	1.8	1.7	1.8
	Plan Objective				1.8	1.7	1.7	1.8

TABLE 2-1, continued

Current Production, Projected Demand and Supply Potential

Activity	Category	Unit of Measure Average Per Year	1981 Level	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021- 2030
SOILS								
Soil & Water Resource Improvement	Current Management	Acres	25	25	25	25	25	25
	Assigned Regional Objective			15	15	20	20	20
	Maximum Needed			25	25	25	25	25
	Plan Objective			25	25	25	25	25
MINERALS								
Leases & Permits	Current Management	Operation Plans	135	287	243	219	125	81
	Assigned Regional Objectives			287	243	219	125	81
	Demand Trends			287	243	219	125	81
	Supply Potential			287	243	219	125	81
	Plan Objective				287	243	219	125

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TABLE 2-1, continued

Current Production, Projected Demand and Supply Potential

Activity	Category	Unit of Measure Average Per Year	1981 Level	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021- 2030
ROAD WORK								
Reconstruction/ Construction								
Local Roads	Current Management	Miles	59	99	88	90	141	125
	Assigned Regional Objective			87	90	90	92	98
	Plan Objective			64	87	105	128	118
Main Road (Arterial Collector)	Current Management	Miles		3	3	3	3	3
	Assigned Regional Objective			5	4	4		
	Plan Objective			3	3	3	3	3

RESEARCH NEEDS

The following research needs have been identified during plan development. This list will be updated during periodic P evaluation.

- Determine various site preparation methods effect to seedling survival and action needed to improve survival.
- Determine complete growth and yields for Forests shortleaf pine, upland hardwood and mixed stand sites.
- Determine factors affecting advanced oak regeneration naturally occurring oak stands, and methods needed to ensure adequate advance regeneration prior to final harvest.
- Determine oak artificial regeneration methods.
- Determine refinement needed to improve predictive model for cultural resource site locations.
- Determine uneven-aged hardwood management effects on specific sites.

Plan Responses to Issues, Concerns and Opportunitie

National Forest land and resource management planning is issue oriented. NFMA Regulations [36 CFR 219.12(f) (4)] state that "Alternatives shall provide different ways to address and respond to major public issues, management concerns and resource opportunities identified during the planning process."

This chapter describes how Ozark-St. Francis National Forest Land and Resource Management Plan responds to major ICO's. Responses to issues are found throughout this Plan, within Chapter 4 Management Goals, Management Requirements, Future Forest Conditions, figures, tables and Appendix Chapter 7.

The ICO process identified eight issues incorporating many facets. (This phase is detailed in process record Identification and Evaluation of Issues to be Addressed in the Forest Land Management Plan on file in the Forest Supervisor's Office in Russellville, AR.)

ISSUE 1: HOW SHOULD TIMBER BE MANAGED ON THE OZARK-ST. FRANCIS NATIONAL

Long term sustained yield capacity for the Forests is 28 million cubic feet (MMCF). This will occur in period 12 Total 50-year harvest is 770 MMCF. Both uneven-aged and even-aged silviculture systems are specified as well as no timber management to meet resource management objectives and consider site conditions. The following summary shows how various situations will be managed—

—Wilderness Areas	66,800 Ac.	No timber mgmt
—Special Areas	23,100 Ac.	No timber mgmt
—Research Natural Areas	400 Ac.	No timber mgmt
—Developed Rec. Areas	8,800 Ac.	No timber mgmt
—Visually sensitive areas along major roads and streams	85,000 Ac.	Unevenaged Silvi Systems
—Old growth condition	150,000 Ac. (Includes the 85,000 acres of uneven aged management.)	Silvi. practice designed to produce old trees
—Experimental Forests	4,900 Ac.	Research
—Poor and steep sites and areas un-needed for resource production.	300,000 Ac.	"Light" Timber Management

In hardwood stands, shelterwood cuts will be used on about 2,500 acres each decade.

Even though this Plan calls for using uneven-aged management for certain situations, many unresolved questions about its

application, especially on areas where timber production is in prime consideration, remain.

To help answer these questions, the Forest Service will develop a study plan using an ad hoc committee with members from the environmental community, timber industry, state agencies, universities, Extension Service, Forest Experiment Station, State & Private Forestry, and National Forest Administration.

Increased shelterwood regeneration in hardwoods as proposed in the Plan will also reduce clearcutting in response to one facet of this ICO.

A silvicultural examination and prescription will determine specific vegetation management practices following standard procedures. If this prescription recommends herbicide use, an environmental analysis will consider herbicide kind, application rate, method and potential environmental effects. The Forest will not use herbicide aerial application.

The Forest Service will not deviate from court stipulations or a decree from Newton County Wildlife Association's lawsuit challenging Forest herbicide program until preparation of a herbicide Environmental Impact Statement.

The Forest will not convert hardwood timber type stands to softwood timber types.

Forestwide and Management Area Requirements in Chapter 3 address timber sale sizes, wildlife coordination measures, regeneration area size and dispersal, herbicide use, wood (including fuelwood) and ground disturbance ICO facets.

ISSUE 2: TO WHAT EXTENT AND WHAT STANDARDS SHOULD ROADS ON NATIONAL FOREST LANDS BE DEVELOPED AND HOW SHOULD THEY BE MANAGED?

Road management emphasis in the Plan is to provide passenger car comfort and convenience to developed recreation sites and high clearance vehicle access for timber sales. Intermittent use is planned for timber sale roads unneeded for other resource uses. Since the Forest is well served, road work is to replace drainage structures and surface treatments. Forestwide Management Requirements in Chapter 4 address facets dealing with road work, maintenance and closure standards.

ISSUE 3: HOW SHOULD NATIONAL FOREST STREAMS BE USED?

Stream management direction in the Plan requires environmental analysis for municipal and industrial water supply applications on Forest streams. Unless such analysis determines a direction change, Forest streams will be managed in free flowing condition as addressed in Forestwide Management Requirements in Chapter 4.

ISSUE 4: WHAT DISPERSED AND DEVELOPED RECREATION OPPORTUNITIES

The Plan provides recreation area expansion for heavily used sites, increases developed experience quality, provides day use facilities at Natural Dam, canoe access points on Mulberry River and Big Piney Creek, and motorbike and horse trails.

SHOULD BE PROVIDED, HOW MUCH SUPPLIED AND WHERE SHOULD THEY BE LOCATED?

Forestwide Management Requirements in Chapter 4 address dispersed recreation opportunity, visual, cultural resource, ORV, undeveloped cave, sensitive resource, and trail management ICO facets.

Management Area 3 requirements in Chapter 4 address other developed recreation management ICO facets.

ISSUE 5: HOW SHOULD DELICATE OR SPECIAL RESOURCE SITES AND AREAS BE MANAGED?

The Plan recommends establishing Turkey Ridge as a Research Natural Area, establishes Clifty Canyons (including Cole Fork Cap Fork, Stewart's Fork and Clifty Canyon) and Dismal Hollow as Botanical areas and recognizes Alum Cove Natural Bridge Blue Hole, Buzzard Roost Rocks, City Rock Bluff, Devil's Canyon Dismal Creek, Hare Mountain, Magazine Mountain, North Twin Pedestal Rocks, Penhook, Sam's Throne, Sandstone Hollow Stack Rock, Sugarloaf Mountain, Waldo Mountain-Wainscot Bottoms and White Rock as special interest areas. Other small sites with sensitive features or plants are identified in silvicultural prescriptions where protective or enhancement measures are prescribed on a case by case basis. The Plan also provides wild cave classification and management. Chapter 4 addresses cultural resource requirements.

Management Area 7 requirements in Chapter 4 provide directions to address these ICO facets. Silvicultural prescriptions will also identify and prescribe management direction for small isolated areas with sensitive plants or features.

ISSUE 6: HOW SHOULD LIVESTOCK BE MANAGED TO ASSURE THE PROTECTION OF OTHER RESOURCE VALUES?

The Plan provides about 30,000 Animal Unit Months (AUM's) livestock grazing annually on about 3,500 managed pastures and 6,000 acres of transitory grazing in pine type with a 1/.7 benefit/cost ratio.

Forestwide Management Requirements in Chapter 4 address other ICO facets.

ISSUE 7: WHAT OFFERED PRIVATE LANDS SHOULD BE ACQUIRED, WHAT EXISTING NATIONAL FOREST LAND SHOULD BE EXCHANGED FOR PRIVATE LANDS AND EXCHANGED FOR WHERE SHOULD ROAD OR TRAIL RIGHTS-OF-WAY BE ACQUIRED NEED?

Planned landownership adjustment objectives in descending priority are to —
—acquire rights-of-way for trails, recreation access and other resource uses.
—consolidate public ownership in wilderness areas,
—acquire lands to meet recreation needs, protect watershed favor timber production, resolve administration problems and for other resource uses,
—select for exchange scattered, isolated tracts with low recreation potential or tracts which block community development or resolve ownership disputes,

Forestwide Management Requirements in Chapter 4 further address these ICO facets.

ISSUE 8: HOW SHOULD WILDLIFE HABITAT BE MANAGED?

The Plan contains several policies, practices and management requirements to benefit Forest wildlife species.

Coordination with Arkansas Game and Fish Commission remains

top priority in annual wildlife and fisheries program. Hunting and fishing regulation is State responsibility while habitat protection and management is Forest Service responsibility. Forest personnel will coordinate all management activities with the State.

This Plan uses Management Indicator Species (MIS) to measure management effects on wildlife and plant habitat. The featured species concept is incorporated into management indicator species selection. The Plan proposes the following mix of acreage devoted to featured species —

—White-tailed deer	588,000 acres,
—Eastern wild turkey	413,400 acres,
—Gray squirrel	111,000 acres,
—Small game species	14,000 acres,
—Non game species	4,000 acres.

This Plan maintains viable native vertebrate and plant populations and improves habitat for deer, turkey, and squirrel. The plan provides 150,000 acres managed to provide groups of older trees scattered across the Forests. About 66,800 wilderness acres in 5 areas and the 300,000 low intensity management acres will eventually provide late successional stage habitat.

Forestwide Management Requirements in Chapter 4 also address facets of this ICO.

Forest Management Direction

OVERVIEW

Forest management direction includes goals, objectives and management requirements that guide goods and services production, and conditions to be maintained while achieving these goals and objectives.

FOREST MANAGEMENT GOALS

Forest management goals are broad statements with no specific completion date that describe a future desired condition.

Goals for the Ozark-St. Francis National Forests are to—

General

- Provide multiple use and sustained yield of goods and services that are cost efficient, respond to public issues and management concerns and maximize long-term net benefits in an environmentally sound manner.
- Protect and improve renewable resource quality while maximizing net public benefits.
- Coordinate land and resource Plan actions with other federal, state and local government plans.
- Coordinate Plan actions with adjacent private landowners to the extent practical.
- Provide plant and animal diversity to meet multiple use objectives.
- Provide safe and enjoyable forest environments for users.
- Limit forest user controls to those essential to meet management area objectives, protect resources and provide public health and safety.
- Respond to land, resource, social and economic changes.
- Maintain a systematic interdisciplinary approach for multiple use management to ensure coordination and integration of activities.

Recreation

- Provide a broad spectrum of developed and dispersed outdoor recreation opportunities consistent and compatible with needs and demands for all major resources.
- Provide quality recreation environments.
- Coordinate recreation facility development with other federal, state, local and private developments to meet demands without needless duplication of facilities.
- Maintain and enhance forest landscapes for long term high visual quality representing natural appearing scenery.

Cultural And Historic

- Preserve and protect significant historic, cultural and natural aspects of our national heritage for the inspiration and benefit of future generations.

ORV

- Ensure controlled off-road vehicle use on public lands to protect resources, promote user safety, and minimize conflicts between various users.

Wilderness

—Provide natural, essentially unmodified ecosystems unimpaired for future use and enjoyment with solitude, primitive recreation, scenic, scientific and educational opportunities while preserving wilderness character.

Wildlife
And
Fish

—Manage fish and wildlife populations to maintain viable populations of existing native and desirable non-native vertebrate species well distributed throughout the Forest.
—Maintain and improve selected management indicator species habitat consistent with overall multiple-use objectives and provide opportunities to restore native species.

Threatened,
Endangered,
or Sensitive
Species

—Protect and enhance critical habitat for threatened and endangered species and provide, where possible, for the removal from threatened and endangered lists.
—Protect and enhance sensitive plants, animals or features through appropriate management.

Grazing

—Manage forage for livestock and wildlife to provide optimum management indicator species habitat and enhance range productivity within current and projected grazing demands.

Timber

—Provide and maintain plant community diversity to meet overall multiple-use objectives.
—Provide timber management prescriptions best suited to multiple-use goals for individual land areas in a cost-effective manner.
—Provide adequately restocked areas within 5 years after final harvest.
—Provide timber management practices to produce high quality sawtimber in final harvests.
—Provide wood products to meet public demands consistent with overall multiple-use objectives including desired effects on water quality, wildlife and fish habitat, tree species, recreation uses and aesthetic values.

Soil, Water,
And Air

—Provide measures to protect, maintain and improve soil, water and air resources.
—Provide stream management to balance development, environmental protection, community and recreation needs.
—Manage riparian areas to protect soil, water, vegetation, fish and wildlife resources, giving special attention to the area within about 100 feet of perennial streams and lakes.
—Maintain or enhance flood plain, wetland, and riparian areas of distinctive values and natural functions.

Minerals

—Manage for mineral prospecting and development to minimize adverse environmental effects on other resource uses and values.

Land Adjustment

—Provide a land adjustment program that emphasizes ownership consolidation for watershed protection, management efficiency and minimizes access and ownership conflicts. Acquire and exchange lands to enhance National Forest and adjacent

landowner objectives on a "willing seller, willing buyer" basis.

Transportation

—Provide cost-effective transportation facilities to enhance access consistent with user safety, resource management objectives and user needs.

Fire

—Maintain a fire management program that meets resource management objectives at a cost-efficient level.

Insect
And
Disease

—Prevent or reduce serious hazards and damage from pest organisms, utilizing pest management principles compatible with forest ecosystems and multiple-use objectives.

FORESTWIDE
MANAGEMENT
REQUIREMENTS

Forestwide Management Requirements set conditions for Plan implementation. These requirements apply to activities where they occur. Exceptions and additions appear in requirements for each management area in this chapter. A silvicultural examination and prescription or other environmental assessment will evaluate proposed management activities for specific sites.

This material supplements National Forest Management Act regulations (36 CFR 219.27), originates from Forest Service directives, manuals, handbooks, the Regional Guide for the Southern Region, and provides managers latitude to use professional knowledge and judgement.

Recreation

See Management Area 3 for developed recreation management requirements.

Dispersed

Provide recreation opportunities responsive to current and anticipated user demands according to direction in Forest Service Manual (FSM 2300).

Maintain a balance of Recreation Opportunity Spectrum (ROS) areas as follows:

	Thousands	
	Acres	Visitor Days
Semi-primitive Nonmotorized	90	21
Semi-primitive Motorized	341	363
Roaded Natural	703	720
Rural	6	456

Manage recreation activities at use levels that prevent environmental degradation (FSM 2351.1). Rehabilitate or close sites when 30 percent vegetation loss or excessive soil compaction is evident.

Provide user groups with desired settings and forest characteristics within the land's physical and biological

characteristics, and as guided by the Forest Service ROS Users' Guide.

Manage areas with attractive but hazardous features to insure adequate public safety.

Emphasize "Pack it in - Pack it out" policy for solid waste, except where disposal facilities are available.

Develop canoe access points on canoeable rivers. Construct three launch sites with 20 People At One Time (PAOT) capacity each on Mulberry River. Construct two launch sites with 20 PAOT capacity each on Big Piney.

Off-Road Vehicle Use

Use executive orders and regulations (FSM 2355.01) and follow direction (FSM 2355.01-.03; R-8 Supplement 25 to FSM 2351.4) to manage Off-Road Vehicle (ORV) use.

All areas of the Ozark-St. Francis National Forests are closed to Off-Road Vehicle use, except open roads (subject to applicable State law), to minimize disturbance, environmental damage and other user conflicts.

Horseback and hiking trails are closed to ORV's, including: Ozark Highlands and Alum Cove National Recreational Trails, Wedington, Mt. Magazine, Horsehead Lake, North Sylamore, Butterfield, Cove Lake, Spring Lake, White Rock, Shores Lake, Spy Rock and Pedestal Rocks Trails.

Developed recreation sites are closed to ORV use except for entry and exit.

Trails

Nominate Forest trails as National Recreation Trails when they meet criteria in the National Trails Systems Act of October 2, 1968 (PL 90-543).

Encourage trail construction and maintenance by voluntary agreement with individuals and organizations.

Plan, design, construct and maintain recreation trails (FSM 2353, 7701 FSH 2309.18 and "Trails South") to provide a variety of trail-related opportunities. Provide hiking, horseback riding, and motorbike trails. Increase total miles to 225 miles by 1995.

Undeveloped Caves

Catalog wild caves as (FSM 2362.42) they are discovered. Inventory and classify caves according to the Cave Research Foundation (CRF) dual system into four categories —

- Hazardous
- Fragile
- Threatened and Endangered Species - seasonal or continued presence
- Insignificant

Maintain a ratings file at each district office.

- Manage cave entry on the basis of the (CRF) rating as either —
- Open
 - Open with interpretation
 - Permit required
 - Closed

Close or restrict access in caves known to be habitat for endangered species.

Prohibit significant habitat alteration within a 200 foot radius around entrances to caves providing endangered bat habitat.

Sensitive Resources

Coordinate with the Arkansas Natural Heritage Commission to identify and evaluate sensitive resource sites for special management, and define protective measures needed on a case-by-case basis to perpetuate sensitive resources. Include location and management recommendations for sensitive resources in compartment records.

Wild and Scenic Rivers

Manage eligible river segments listed in The Nationwide Rivers Inventory of recommended Wild and Scenic Rivers Study so as not to render the segment unsuitable for inclusion in The National Wild and Scenic Rivers System.

Cultural Resources

Comply with the Federal Antiquities Act of 1906 and The Archeological Resources Protection Act of 1979; follow 36 CFR 60 for sites eligible for inclusion in the National Register of Historic Places; and follow 35 CFR 800 as detailed in FSI 2360 to protect significant cultural resources. Except for adequately protected sites, research sites and interpretive sites, cultural resources will be protected by maintaining their confidentiality.

Prescribe measures for enhancement, protection, recovery, curation and/or public use of all significant cultural and historic sites.

Coordinate management direction with the State Historic Preservation Office and other appropriate State and Federal agencies.

Retain lands in any proposed exchange or land disposal action until significant sites are fully evaluated and mitigation measures performed.

Complete surveys prior to soil-disturbing activities per FSM 2361.23. Classify cultural resources for relative significance into classes defined in FSM 2361.1, and nominate eligible sites for inclusion in the National Register of Historic Places.

Visual

Use the Prescription process to refine the visual inventory.

Perform activities identified by the Visual Quality Objectives (VQO) assigned to each management area defined in National Forest Landscape Management, Volume 2, Chapter 1, Agricultural Handbook 462 as follows—

- Manage 81,000 acres as VQO Preservation.
- Manage 140,000 acres as VQO Retention
- Manage 363,000 acres as VQO Partial Retention.
- Manage 456,000 acres as VQO Modification.
- Manage 100,000 acres as VQO Maximum Modification.

Plan and provide vistas along roads and trails.

Use rehabilitation VQO to restore landscapes with undesirable visual impacts and enhancement VQO to increase positive visual variety where opportunities exist.

Implement shelterwood or group selection cutting methods in visually sensitive hardwood stands.

Mitigate clearcut timber harvest visual impacts through special treatments —

- Use irregular boundaries.
- Leave tree groups within clearcuts.

Construct roads to blend with the landscape. Shape cuts and fills to the natural contours.

Manage utility corridors and rights-of-way to obtain conformance with adopted VQO's.

Wilderness

See Management Area 1 for wilderness management requirements.

Wildlife and Fish

Manage wildlife habitat to maintain viable populations of all native vertebrate and plant species.

Follow wildlife and fish guidelines (FSM 2600 and FSM 2609.23R). Establish at least four well distributed 1 - 5 acre openings in the absence of glades, closed roads or utility corridors, per 640-acre habitat unit. Establish improved wildlife forage species on at least one opening, where natural forage is inadequate, per 640-acre habitat unit. Provide at

least two permanent water sources per 640-acre habitat unit where natural water sources are absent. In pine type develop and maintain about 20% mast producing trees per square mile.

Use timber management activities to create or improve forest diversity. Apply old growth prescriptions to about thirteen percent of the Forest. Old growth prescriptions create a condition instead of an age or rotation length. Old growth stands are diverse ecosystems exhibiting plant, vertebrate and invertebrate animal and aquatic organism diversity. The old growth prescription should furnish the following characteristics —

- two or more tree species with a wide size and age range, often containing long-lived shade tolerant associates.
- a deep multilayered canopy.
- more than ten individual live trees per acre that are over 120 years old, or that are over 22 inches diameter at breast height.
- significant coarse woody debris including more than ten snags per acre over 20 feet tall.
- at least four snags and logs per acre that have a greater than 22 inch diameter and 30 foot length.

Minimize disturbance of nesting turkeys during peak nesting season where feasible. Restrict timber harvest activity in identified critical turkey nesting habitat during the nesting season. Close roads in selected turkey nesting habitat during the nesting season.

Develop a plan in cooperation with the Arkansas Game and Fish Commission to manage the fisheries resources.

Develop warm water fisheries management direction for ponds and lakes larger than one acre with a minimum six-foot depth.

Wildlife Habitat Improvement

Use coordination measures in the Wildlife Habitat Improvement Handbook, FSH 2609.11 to guide wildlife habitat improvement.

Fish Habitat Improvement

Manipulate lake levels, fertilize and control aquatic vegetation to improve fish habitat in coordination with recreation and soil and water management goals.

Install fish cover structures in lakes and ponds where natural cover is inadequate.

Threatened, Endangered and Sensitive Species

Protect plants and animals identified on Federal, State or Forest Service Regional sensitive lists (FEIS Table 3-3).

Manage threatened and endangered plant and animal habitat to provide for the species removal from threatened and endangered

lists. Close or restrict access to caves known to be habitat for endangered species. Design gates or fences installed at cave entrances to allow bats free entry and exit and allow normal air flows. Where other endangered species are encountered, manage habitat according to recovery plan recommendations.

Maintain standing dead, existing and potential hollow den and loose bark trees within riparian areas.

Protect sensitive species located within Special Interest Areas on a case-by-case basis.

Identify new sensitive species sites in compartment prescription records to insure protection until evaluation in cooperation with Arkansas Natural Heritage Commission. Use this evaluation to determine management direction.

Range

General

Follow range improvement guidelines (FSM 2200, FSH 2209.21, and Regional Guide for the Southern Region, issue on "Livestock Grazing on Forests and Rangelands, Standards and Guidelines").

Control stocking levels, use season and livestock distribution to maintain desirable forage species composition and condition, and avoid soil compaction and erosion.

Permits

Determine initial stocking rates before issuing term grazing permits (FSH 2209.21), and determine subsequent stocking rates by production and utilization studies for each allotment.

Assign allotments to inactive status and issue no new term grazing permits where estimated initial stocking rates are below 50 animal months, and forage improvements will not meet (FSM 2246 and FSH 2209.11) project effectiveness criteria.

Improvements

Provide structural and non-structural improvements that meet (FSM 2246 and FSH 2209.11) project effectiveness criteria to obtain even livestock distribution and proper forage utilization (FSM 2244 and 2245).

When seeding to establish or maintain forage areas, include species beneficial to wildlife.

Use design guidelines (National Forest Landscape Management, Volume 2, Chapter 3, "Range"; Agriculture Handbook 484) to meet visual quality objectives.

Timber

Planning and Inventory

Provide a non-declining yield of forest products consistent with land capability, suitability, protection needs and other resource values. The following product objectives are established —

- Upland Hardwood greater than SI 60 (oak) - 18" to 20" sawtimber with grade 1 or 2 butt logs.
- Upland Hardwood less than SI 60 (oak) - less than 12" small roundwood.
- Yellow Pine - 18" sawtimber.

Follow guidelines for timber management in FSM 2400.

Apply guidelines (Silvicultural Examination and Prescription Handbook 2409.26d and Silvicultural Practices Handbook 2471.1-R-8) to prepare and implement silvicultural prescriptions before timber management activities.

Apply even-aged management and its associated harvest cutting methods to suitable lands where other resource management requirements do not indicate the need to use a different system.

Use clearcutting only when it is the optimum harvest method after on-the-ground examination and consideration of all stand conditions, site factors and other resource management requirements.

Use seed tree cutting to regenerate pine stands when genetically-improved seedlings are unavailable, or where soil conditions, slope or other factors make it a more appropriate cutting method.

Use shelterwood cutting to regenerate hardwood stands when young trees and sprouting potential are inadequate to produce an acceptable new stand, and where planting or seeding are not viable options. Use this method also in pine and hardwood stands to meet other resource needs.

Use uneven-aged management (group selection cutting method) for upland and bottomland hardwoods where timber yields are not the main objective. Group selection is appropriate in visually sensitive areas and along streams where riparian values are primary considerations.

Reforest areas denuded by fires or other catastrophes as soon as possible.

Prescribe newly-acquired lands at first opportunity to determine reforestation or other needs.

Permit firewood gathering in low quality hardwood areas, harvest areas, treated areas, stands needing thinning, and in wildlife openings as opportunities arise.

Sale Layout and Design

Use direction in Regional Guide for the Southern Region, issue on "Timber Production, Standards and Guidelines, Maximum Size, Dispersal, Size Variation and Duration". The maximum size stand opening created by clearcutting, shelterwood, or seed tree cutting in one operation is 40 acres in hardwood and 80 acres in pine. The Regional Forester can approve larger openings to —

- Reduce soil, water, fish, other riparian resource, and residual vegetation disturbance.
- Allow more cost-effective logging systems that reduce landing and road construction.
- Locate roads away from unstable soils.
- Reduce vegetation disturbance resulting from log skidding activities.

Acreage limits will not apply to areas harvested as a result of catastrophic conditions such as fire, insect or disease attack, wind storm or acquired cut-over lands.

Separate regeneration cuts by at least 330 feet. The area between cuts shall support vegetation so that it is not classed as an opening (except it may contain natural openings, rights-of-way, and wildlife openings).

An even-aged regeneration area is no longer an opening when it is about 20 percent as tall as the tallest adjacent stand. Height of the adjacent stand will be based on the average of the dominant and codominant trees in the re-established and tallest adjacent stands. The determination of the height relationship will be made at the time of silvicultural examination and prescription. This determination should show whether the appropriate height has been reached, or whether the appropriate height is projected to be reached, by the time of treatment. The percentage relationship will be allowed to vary up or down for specific stand situations where an interdisciplinary planning team, following the NEPA process, recommends to the responsible official that adjusting the percentage will lead to better attainment of the overall objectives of multiple-use management.

Design regeneration areas to meet wildlife needs (Wildlife Habitat Management Handbook, FSH 2609.23). Distribute regeneration areas so that no more than about 30 percent of 1,000 acres is in the 0 to 20 year age class.

Offer timber sale packages sized and designed to meet local industry capabilities.

Use techniques established in (National Forest Landscape Management, Volume 2, Chapter 5, "Timber", and Agriculture Handbook 559), to meet visual quality objectives. Favor long-lived species, specimen trees and trees of special

interest for foliage, coloration, form and branching habit along roads, trails and streams.

Use logging systems that meet silvicultural prescription objectives. Use cable yarding systems on sustained grades above 35 percent. Limit excavated skid trails to protect other resource values. Separate skid trails by at least 200 feet unless drainage patterns prevent separation. Keep excavated skid trails below 15 percent grade except for short stretches (200 feet) of up to 25 percent.

Use available wood from harvested and treated areas by —
 —Using timber sale contract requirements to specify wood and product use.
 —Increasing opportunities to use material for fuelwood.

Reforestation and Cultural Needs

Use artificial and natural regeneration methods to re-establish stands within five years after final harvest. Five years after final harvest means —

- Five years after clearcutting.
- Five years after final shelterwood overstory removal.
- Five years after seed tree removal.

Adequate stocking levels are as follows:

<u>SITE INDEX</u>	<u>TREES PER ACRE</u>		
	<u>Lower Level</u>	<u>Target Level</u>	<u>Upper Level</u>
	Pine		
50	150	500 - 700	900
60	200	500 - 700	900
70+	300	500 - 700	900
	Hardwood		
all	150	250 - 350	500

Levels are guides to determine correct stocking for a given site.

Lower Level represents stocking below which sites will be under utilized for over half the rotation, and trees may be poorly formed. Inter-planting is not recommended for southern pines. At this level, early thinnings must be deferred.

Target levels show desired stem number to produce well-formed trees for early thinnings and economic returns. These levels are generally below optimum timber production levels, but are a compromise with other resource needs.

Upper Level may require pre-commercial thinning.

Minimum acceptable pine stocking levels below Regional Guide Standards are necessary on the Ozark - St. Francis because droughty sites make target level achievement impossible in some areas. Economically, accepting stocking levels below Regional Guide Standards is better in some cases than spending more.

Thin intermediate-aged stands on suitable lands at timely intervals to maintain vigorous growth. (Silvicultural Practices Handbook, FSH 2471.1, R-8).

When clearcutting pine is prescribed, use artificial regeneration and genetically-improved seedlings (when available). Where constraints preclude artificial regeneration, use seed tree cutting. Rockiness (greater than 35 percent by volume) or heavy animal browsing are planting constraint examples.

Use reforestation guidelines for ground disturbance (FSM 2472, R-8 Supplement 238). Avoid burning on sustained slopes over 35 percent. Conduct mechanical site preparation activities during dry seasons to avoid soil compaction.

In stands designated pine management type, use silvicultural treatments that allow a hardwood component up to 30%.

In stands designated hardwood management type, use silvicultural treatments that allow a conifer component up to 30%.

Use herbicides in hardwood regeneration sites only to selectively reduce non-commercial species or less desired species such as red maple.

Release pine plantations using hand tool, mechanical or herbicide methods as indicated by stand examination. In both pine and hardwood, the objective is to release enough desirable stems for the new forest, not to treat all stems.

A silvicultural examination and prescription will determine specific vegetation management practices following NEPA procedures. If this prescription recommends herbicide use, the environmental analysis will consider herbicide kind, application rate, method and potential environmental effects. The Forest will not use herbicide aerial application.

The Forest Service will not deviate from court stipulations resulting from Newton County Wildlife Association's lawsuit challenging the Forest herbicide program, until the Forest Service prepares a new vegetation management Environmental Impact Statement.

The Forest will not convert hardwood timber type stands to pine timber types.

Fuelwood

Make fuelwood available to potential users consistent with managing and protecting other resource values, budget and personnel constraints.

Coordinate existing programs and financing with fuelwood demand to increase production, growth and utilization.

Water, Soil And Air

Maintain long-term site productivity, protect water resources and stream channel stability, and maintain floodplain and riparian area values by—

—locating, designing, constructing and maintaining roads and other improvements to avoid floodplains and riparian areas, or to minimize impacts on water quality and flood flows (100 year flood) (FSM 2527, 7114, and Executive Order 11988).

—by doing management activities that conform with limits expressed in the "Guide for Calculating Tolerable Accelerated Soil Loss for Forested Lands in the Southern Region". Soil loss will not exceed Soil Forested T-factors.

Follow FSM 2472.4, 2, R-8 Supplement 238; 2482, R-8 Supplement 308 guidelines and Best Management Practice guidelines in Section VI of the Arkansas Water Quality Management Plan.

Perform vegetative treatments in riparian zones (FSM 2526 and FSM 2526, R-8 Supplement 31). Conduct debris and sediment removal from streams (FSM 2521.22, R-8 Supplement 15).

Conduct watershed improvement projects to maintain or enhance soil productivity and to improve the quantity, quality and timing of water delivery (FSM 2522, R-8 Supplement 39, FSH 2509.12 -13 and The Regional Guide for the Southern Region, Issue on "Water, Standards and Guidelines", 3). Fully vegetate (greater than 90 percent) or protect disturbed areas so that no signs of sediment leaving the area are visible three years after treatment.

Follow water quality management objectives (FSM 2542, 2575, R-8 Supplement 28 and Ozark - St. Francis Supplement 1).

Permit water supplies according to The Regional Guide for the Southern Region, Issue on Water, Standards and Guidelines, 2.

Promote and apply approved Best Management Practices to management activities to control non-point pollution sources and comply with state or national water quality goals.

Design facilities and construction activities using information from Stage II Soil Resource Inventories and their interpretations (FSM 2331.11c, FSH 2509.14, 55.24, R-8 Supplement 1).

Develop and implement erosion control plans for ground disturbances resulting from road and other construction (FSH 2509.12, FSM 2509.11, and FSM 7721.54, R-8 Supplement 46).

Maintain vegetative filter strips (streamside management zones), generally at least 50 feet wide, along each side of perennial and intermittent streams to reduce sediment and logging debris reaching streams and to prevent water temperature increases. Filter strips will have ground cover to trap sediment, an intermediate canopy, and an overstory canopy for stream shade. Maintain at least 50 percent forest canopy closure for 100 feet on each side of perennial streams in riparian zones.

Guidelines for width of filter strips are:

Erosion Hazard of Soil in Filter Strip	Percent Slope						
	0	10	20	30	40	50	60
	FEET						
Slight	50	55	80	105	130	155	180
Moderate	50	75	100	140	170	200	235
Severe	50	90	130	170	210	250	290

Exclude vehicles from streams except at designated crossings.

Coordinate with State and Regional planning bodies and conduct activities on the Forests to maintain Class I air quality in the Upper Buffalo Wilderness, and Class II air quality over the rest of the Forests.

Use process outlined in The Southern Forest Smoke Management Guidebook, Forest Service General Technical Report SE-10, 1976, Impacts of Smoke from Prescribed Fire and Fire Suppression.

Minerals
And
Geology

Mining Claims

Unless formally withdrawn from mineral entry, National Forest Lands with "Reserved from the Public Domain" status are open to mineral entry pursuant to the Mining Law of 1872. Follow procedures for protecting surface resources defined in FS: 2817.

Administration of Mining Claims

Require notices of intention to operate, operating plans, or mining plans for all proposed activities.

Prepare site-specific environmental assessments for proposed surface-disturbing activities.

- Perform validity examinations when —
- there is an unauthorized (non-mineral) use.
 - application of patent is received.
 - unacceptable resource damage has occurred or may occur.

Inspect use to assure compliance with approved notices and plans.

Implement restoration plans.

Process contests and appeals.

Inventory mining claim locations.

Hardrock Minerals

Process prospecting permit and lease applications. Evaluate land status and availability, conflicts with previous leases, permits or applications, and conflicts with other resources or uses.

Allow concurrent operations when —

—mineral site occurrences do not conflict.

—mineral occurrences are geologically or strategically segregated.

—applicants, party to the conflict, agree to simultaneous occupancy and operations.

Exercise USDA authority for prospecting permit issuance only for nonspecific mineral surveys —

—surface mapping

—geophysical surveys

—geochemical surveys

Require standard stipulations for all permits and leases. Add stipulations as conditions dictate.

Require special use or road use permits for off-lease use.

Administer mining operations to assure compliance with approved plans and with terms and conditions of permit and leases.

Leasable Minerals

Follow guidelines for administering leasible minerals in FSM 2820 and the Ozark - St. Francis National Forests Oil and Gas Leasing Environmental Assessment.

Process oil and gas lease applications within 30-day turnaround time, evaluating land status and availability, conflicts with previously submitted applications or issued leases, and conflicts with other uses or resources. Require needed special stipulations.

Inventory oil and gas leases and applications.

Process and participate with Bureau of Land Management (BLM) in processing applications for permit to drill.

Process and record notifications on unit agreements and assignments.

Before removing common variety materials (except surface stone) prepare and implement pit development plans.

Assure the availability of good common variety materials for in-service, free use or sales by systematic development of known sources or by identifying and developing new sources of such materials.

Administer operations to assure compliance with pit operating plan and with terms and conditions of permits or leases.

Issue no oil and gas leases for areas withdrawn from leasing laws, areas involved in exchange cases, or wilderness areas.

Administer drilling permits to assure compliance with approved leases, permits and notices.

Issue and administer geophysical prospecting permits with standard clauses except where —
—site-specific analysis indicates conditions not previously addressed.
—designated wilderness exists.

Common Variety Minerals

Require approved, permittee-prepared operating and restoration plans prior to surface-disturbing activities for any issued permits or leases. Require approved operating and restoration plans prior to inservice common variety mineral uses other than surface stone.

Follow conditions specified in the Forest's Programmatic Environmental Assessment for selling surface stone.

Allocate common variety mineral materials within authority of 36 CFR; 43 CFR.

Reserved or Outstanding Mineral Rights

Forward proposals to exercise outstanding or reserved mineral rights to the Office of the General Council (OGC) when specific ownership rights are in question.

Lands

Special Use

Follow procedures in FSM 2700-2740; The Environmental Assessments for Bird Dog Field Trials; Motorcycle Enduro Events; Pipelines, Utility Lines and Private Roads; Private Permanent Structures for authorizing proposed special uses, leases, easements and interagency agreements.

Coordinate with Air Force in locating low level training flights on the Forests to protect solitude, threatened and endangered wildlife and fire suppression forces.

Rights-of-Way

Require joint use of existing rights-of-way corridors for additional compatible rights-of-way uses.

Withdrawals

Evaluate withdrawals and make recommendations based on criteria established in FSM 2760.

Property Boundary Location and Maintenance

Locate and mark all National Forest boundary lines to standards defined in FSM 7153.

Schedule boundary and corner maintenance at 10-year intervals on the Ozark National Forest and at 7-year intervals on the St. Francis National Forest.

Title Claims and Encroachments

Resolve title claims and encroachments (FSM 5450). Give first priority to claims involving incompatible uses or creating claimant hardships.

Currently enter claims cases on District Claims and Encroachment Inventory, and maintain until resolved.

Land Ownership Adjustment

Retain National Forest Lands within areas defined on the LMP Map as "areas of no acquisition or disposal".

Allow disposal of National Forest land in "available for disposal" areas defined on the Land Management Plan Map. Allow disposal in other Forest areas as exchange offers are received only if —

—the National Forest land is a small isolated parcel, and consolidation into an efficiently manageable block cannot reasonably be anticipated.

—the National Forest land is located within or adjacent to an expanding rural community with limited private land base and there is no specific need to retain the land.

—a site-specific environmental analysis clearly shows exchange meets laws and regulations, and is in the public interest.

Allow National Forest land disposal for Mt. Magazine State Park to the State of Arkansas for equal value of mineral rights held by the State under National Forest lands. This exchange will only be consumated if the State appropriates money for development of the park by July 1989.

Acquire road and trail rights-of-way across private land for specific needs (FSM 5460).

Acquire no lands in areas defined on the Land Management Plan Map as "areas of no acquisition or disposal".

In other areas, first priority for acquisition is tracts offered in wilderness areas by willing sellers, traders, or donors. Second priority for acquisition is other offered private lands which —

—are suitable for timber production or watershed protection, and

—have at least 85 percent of the value attributable to land and no more than 15 percent attributable to improvements.

—are offered by a willing seller, trader or donor.

—if acquired, will result in an ownership pattern which will provide more efficient or increased production of goods and services to the public.

—if acquired will reduce National Forest property lines or provide specific public recreation benefits.

Acquire lands in areas defined in Land and Water Conservation Funds Recreation Composites as offered by willing sellers, traders or donors.

Facilities

General

Develop and maintain facilities to serve users and to be compatible with the environment.

Public Health and Pollution Control

Follow direction in FSM 7400 and FSH 7409.11 (Sanitary Engineering and Public Health Handbook), Executive Order 12088. Promptly correct public health hazards (FSM 7413.1) or close the facility.

Water Supply

Provide safe potable water supplies (FSM 7421, FSH 7409.11 and FSM 7420.1) or prohibit water use.

Wastewater

Develop and manage wastewater collection systems and treatment facilities (FSM 7430) so that effluent meets or exceeds treatment and discharge requirements established by PL 92-500, October 18, 1972; and Executive Order 11752, December 17, 1973; Arkansas Department of Health, Department of Pollution Control and Ecology; (FSH 7409.11, FSM 7430).

Solid Waste

Locate, design, operate and maintain solid waste systems to meet Federal, State, and Local requirements (FSM 7460).

Water Storage and Transmission

Develop and maintain safe water storage and transmission facilities (FSM 7500-7504).

Permit water impoundments on National Forest land only after an environmental assessment.

Provide periodic dam inspection and routine maintenance (FSM 7500). Perform reconstruction as required.

Use an interdisciplinary team for water storage and transmission facility design and development criteria.

Roads

Control access, use and maintain road class distribution relationship according to Southern Region Standards and Guidelines.

Follow FSM and FSH 7700 direction in planning, operating and maintaining the transportation system. Additionally, use National Forest Landscape Management Guide and Agriculture Handbook 483 to develop the system.

Plan and design all roads to re-establish vegetative cover on disturbed areas (FSM 7700 and FSH 2500).

Utilities

Use National Forest Landscape Management, Volume 2, Chapter 2, "Utilities"; Agriculture Handbook 478 guidelines to meet visual quality objectives.

Buildings

Locate, design, construct and maintain buildings (FSM 7310 and FSH 7309.11).

Provide landscape plantings appropriate to site.

Protection

Wildfire

Provide cost efficient fire management to protect life, property and meet land and resource management objectives (FSM 5100).

Treat wildfires according to "Values at Risk" under the "cost plus net resource value change" concept (FSM 5103-5105). Base fire expenditures on resource values and potential resource loss by fire intensity. Control wildfires depending on their threat to life, property, threatened or endangered species, air, water, soil productivity or private lands. Use planned and unplanned ignitions to accomplish resource management objectives when they burn within prescribed conditions. Apply

watershed and soil protection measures as part of post-suppression activities.

Maintain an up-to-date and aggressive fire organization and a coordinated fire prevention and suppression program.

Insect and Disease

Although pest damage has been low with no record of past epidemic outbreaks, minimize pest problems by maintaining vigorous forests on suitable lands.

Apply Pest Management concepts described in The Regional Guide for the Southern Region, Issue on "Timber Production on National Forests, Standards and Guidelines", Rotation, 4 Pest Management, to achieve resource management objectives. Use timely thinnings, salvage and sanitary cuts, and pesticide application when required to meet objectives.

Evaluate all pesticide uses except those for housekeeping or for less than one pound of active ingredients on a case by case basis.

Use pesticides according to label directions, (FSM 2150) and the Federal Insecticide, Fungicide and Rodenticide Act of 1947 as amended by Congress in 1972 and administered by EPA. Follow NEPA process with public involvement, prior to any pesticide aerial application (no herbicide aerial application). Within 100 feet of open water use only those pesticides registered for use in aquatic areas.

Detect and monitor forest pests by —

- Forest personnel in performing their regular duties.
- Forest pest management aerial and ground surveys.

Use preventive techniques to reduce Forest pest incidence and impact when economical.

Suppress Forest pests that economically or biologically threaten resource management objectives.

Law Enforcement

Maintain law enforcement activities to reduce illegal activities on National Forest land and improve working relationships with other law enforcement agencies.

Research

See Management Area 2 and 5 in this chapter. Areas containing other research study plots are identified on the Land Management Plan Map.

Coordinate proposed management activities near research study plots with the Southern Forest Experiment Station.

Identify plot locations and objectives in compartment records.

Prescribed Burning

Prepare a written prescribed burning plan for each burning project. Follow direction in the Environmental Assessment for Prescribed Burning, October 26, 1981 and FSM 5150 when implementing prescribed burning plans.

Use prescribed burning to improve wildlife habitat, increase forage and facilitate timber management.

Social and Economic

Use human resource programs to provide employment, skills training, work experience and education for young and elderly citizens.

Maintain steady goods and services flows to prevent sudden changes in local social and economic conditions.

MANAGEMENT AREAS AND PRESCRIPTIONS

Ozark-St. Francis National Forests are divided into eight management areas which appear on the Forest Plan map. Management area boundaries delineate areas with similar management direction.

Management prescriptions are strategies containing a series of activities to resolve major Forest issues. Formulating this Plan required 574 management prescriptions, many of which are very similar. Prescriptions with the same emphasis and intensity have the same practices and management requirements; however, they have different production levels (often at different costs) when applied to different analysis areas. (Land groupings with similar physical and biological characteristics).

Management prescriptions in this Plan group activities with the same emphasis and intensity.

Management areas and prescriptions are displayed as follows—

- Management area descriptions.
- Management area goals.
- Management area direction.
- Management prescriptions, practices and requirements which supplement or modify Forest-wide management requirements.
- Management practices and effects Proposed for Period 1 and Probable for Period 2.

Management Area 1 Wilderness

Description

This 66,800-acre management area includes (area to nearest 100 acres)—

- Upper Buffalo Wilderness and Upper Buffalo Wilderness Addition - 12,000 acres on the Buffalo District.
- Hurricane Creek Wilderness - 15,200 acres on the Buffalo District.
- Richland Creek Wilderness - 11,800 acres on the Buffalo District.
- East Fork Wilderness - 10,800 acres on the Bayou District.

—Leatherwood Wilderness - 17,000 acres on the Sylamore District.

All 66,800 acres in this management area are unavailable and therefore unsuitable for timber production.

Goals

Preserve wilderness character, manage for present and future wilderness use and enjoyment.

Direction

Manage the Upper Buffalo Wilderness according to Wilderness Act of 1964 and Eastern Wilderness Act of 1975 direction. Manage Upper Buffalo Wilderness Addition, Hurricane Creek, Richland Creek, East Fork and Leatherwood Wildernesses according to Wilderness Act of 1964 and Arkansas Wilderness Act of 1984.

Management Prescriptions, Activities and Requirements

Prescription 600 applies to all 66,800 wilderness acres. A discussion of management activities and requirements in this prescription follows:

Recreation. Management will provide semi-primitive, non-motorized recreation opportunities.

Visual. The Visual Quality Objective (VQO) is preservation.

Wilderness. Manage (FSM 2323-2326) to maintain capability to provide 133,600 Persons At One Time (PAOT) days annually. Develop management direction specific to each area, tiered to this plan. Control visitor use (FSM 2323.12) when it exceeds two visitor days/acre/year.

Wildlife and Fish. Conduct no wildlife or fish habitat improvements; instead, allow wildlife species to reach populations associated with a "natural forest".

Range. Issue no new grazing permits.

Timber. Timber harvest and other silvicultural activities are prohibited unless approved by Chief of the Forest Service after an environmental assessment.

Soil and Water. Use native materials for any soil and water rehabilitation work.

Air. Meet Class I air quality standards in Upper Buffalo Wilderness, and Class II in Upper Buffalo Addition, Hurricane Creek, Richland Creek, East Fork and Leatherwood Wildernesses (Refer to Chapter 9 EIS, Federal, State Air Quality Standards).

Minerals. Prohibit mineral leasing and development in this management area.

Facilities. Close roads into wilderness areas except those providing access to private lands and cemeteries. Continue to maintain rights-of-way, drainage structures and roads which form wilderness area boundaries.

Prescribed Burning will not be used.

Wildfire. Fire intensity level and ignition cause will determine suppression approach. Use handtools as the primary method to suppress fire according to Chief's policy and FSM 2324.2. When fire intensity levels reach moderate to high, and resource damage will occur, Forest Supervisor may approve motorized equipment use. Regional Forester must approve tractor use.

Insects and Disease. Allow insects and diseases to follow a natural course except where imminent danger exists to resources on adjacent non-wilderness lands, or to wilderness values. Pest control action requires Chief's approval.

Table 4-1

Proposed and Probable Activities - Management Area 1

<u>Activity</u>	<u>MIH</u>	<u>Units</u>	<u>Proposed Period 1</u>	<u>Probable Period 2</u>
Recreation, Cultural Inventory	A02	Acres	0	64,200
Trail Maintenance	A12	Miles	12	12
Wilderness Planning	B01	Plans	5	0
Wilderness Use Administration	B03	PAOT Days (Visitor Days)	133,600	133,600
Wilderness Research	B05	Scientist Years	1	1
Property Boundary Location	J06	Miles	47	0
Property Boundary Maintenance	J07	Miles	0	47

Management
Area 2
Research
Natural
Areas

Description

This 400-acre (nearest 100 acres) management area is the proposed Turkey Ridge Research Natural Area on the St. Francis National Forest. It has 90-100 year old white oak-red oak-hickory (SAF type 52), and swamp chestnut-cherrybark oak (SAF type 91) stands. All 400 acres in this management area are unavailable and therefore unsuitable for timber production.

Goals

Provide undisturbed forest, shrub and aquatic ecosystems for non-manipulative research, observation and study (FSM 4063.3).

Direction

Management is to perpetuate natural processes and preserve naturally-occurring ecosystems by non-destructive, non-manipulative means.

Management Prescriptions, Activities and Requirements

Prescription 600 applies to all 400 acres in this management area. Management activities and requirements follow:

Recreation. Provide no recreation developments. Meet semi-primitive non-motorized ROS class. Since the area emphasizes research, recreation opportunities are not emphasized.

Visual. The VQO is preservation.

Wildlife and Fish. Conduct no wildlife or fish habitat improvements; instead allow wildlife species to reach populations associated with a "natural forest".

Range. Permit no livestock grazing.

Timber. Timber management activities are prohibited in this area.

Minerals. Prohibit common variety mineral operations and surface occupancy for mineral exploration, mining or operation.

Special Uses. Permit only compatible research or study uses.

Boundaries. Establish Research Natural Area (RNA) boundary corners.

Facilities. No new facilities (roads, trails, or structures) permitted unless required to meet RNA objectives.

Prescribed Burning will not be used on this area.

Wildfire. Use control strategy for all man-caused fires.

TABLE 4-2

Proposed and Probable Activities - Management Area 2

<u>Activity</u>	<u>MTH</u>	<u>Units</u>	<u>Proposed Period 1</u>	<u>Probable Period 2</u>
Recreation, Cultural Inventory	A02	Acres	0	400

Description

This 8,800-acre (nearest 100 acres) management area contains developed recreation sites throughout the Forests. Settings range from near natural environments to intensive site modification including paved roads, pressure water systems, showers and sewage treatment plants. Developed recreation areas by District are:

Sylamore. Barkshed, Blanchard Springs Caverns, Gunner Pool, North Sylamore Creek and Shelter Cave.

Buffalo. Alum Cove, Fairview and Richland Creek.

Bayou. Bayou Bluff, Brock Creek, Haw Creek Falls, Long Pool and Rotary Ann.

Pleasant Hill. Horsehead Lake, Ozone, Redding and Wolf Pen.

Boston Mountain. Gray's Spring, Lake Wedington, Shores Lake and White Rock Mountain.

Magazine. Cove Lake, Mount Magazine (includes Brown Springs, Cameron Bluff, East End and Greenfield) and Spring Lake.

St. Francis. Bear Creek Lake, Beaver Point, Beech Point, Lone Pine, Maple Flat and Storm Creek Lake.

All 8,800 acres in this management area are unavailable, and therefore unsuitable for timber production.

Goals

Maintain present developed site range and quality for public enjoyment.

Direction

Provide developed recreation opportunities at forested or water-oriented settings with a wide range of facilities for user convenience and safety. Develop Natural Dam for day use picnicking and swimming. Expand facilities to accommodate demand at North Sylamore, Lake Wedington, Shores Lake and Spring Lake.

Management Area 3 Developed Recreation Areas

Management Prescriptions, Activities and Requirements

Prescription 1800 applies to this 8,800-acre management area. Management activities and requirements for this area follow:

Recreation. Manage developed sites to provide quality roaded natural and rural experiences (FSM 2333, 2331.3, R-8 Supplements 23 and 28, Cleaning Recreation Sites, July 1980). Maintain sites to provide visitor protection and prevent resource damage by—

- Keeping campgrounds open through heavy use seasons, for hunters, canoers and hikers.
- seasonally closing high-cost, low-use sites when use falls below 10 percent of managed theoretical capacity.
- signing or barricading hazard areas.
- posting floodplain heights for 100-year and record floods.
- limiting use to design capacity.
- redesigning facilities being reconstructed to accommodate elderly and handicapped persons.

Plan and expand camping and day use facilities (FSM 2331- 2355) at high demand sites by developing group facilities, improving camping and swimming facilities at North Sylamore, Shores Lake and Spring Lake and developing swimming and picnicking at Natural Dam.

Visual. The VQO is retention on all 8,800 acres.

Wildlife and Fish. Provide habitat to attract wildlife compatible with human activity by providing late successional stage habitat, open areas and nesting opportunities.

Range. Prohibit livestock grazing in developed sites.

Timber. Since all developed recreation sites are unavailable, and therefore unsuitable for timber management, tree cutting in this management area is to enhance recreation use, safety and vegetative vigor. Reasons to remove trees in recreation areas include removing dead and dying trees; removing trees for trails, campsites, picnic sites, access roads, parking lots, buildings and utilities; providing play and beach areas; providing sunlight for grass, shrubs and small trees.

Cutting methods appropriate to meet recreation needs include selecting individual trees and small tree groups for removal in both hardwood and pine types, using small shelterwood cuttings in hardwood types and seed tree cuttings in pine types. An on-site examination and prescription to meet recreation needs will determine cutting methods.

Soil and Water. Rehabilitate sites that show vegetation loss, compaction and erosion (FSH 2509.22). Assure safe swimming waters through water quality monitoring (FSM 2542.5, R-6 Supplement 32).

Minerals. Prohibit common variety minerals operations and surface occupancy for minerals exploration or mining.

Facilities. Periodically inspect and maintain dams (FSM 7500). Do priority reconstruction as required.

Provide and maintain facilities (FSM 2336). Manage private recreation developments on National Forest land (FSM 2700, 2710, 2720, and 2340).

Maintain paved roads at level five and gravel roads at levels three and four.

Law Enforcement. Ensure legitimate area use with minimum restrictions. Promote visitor safety and inform visitors of regulations. Continue existing cooperative agreements. Develop patrol schedules for peak activity periods.

Prescribed Burning. Prescribe burn natural fuels to reduce wildfire risk in high value areas.

Wildfire. Use control strategy for all wildfire.

Table 4-3

Proposed and Probable Activities - Management Area 3

<u>Activity</u>	<u>MIH</u>	<u>Units</u>	<u>Proposed Period 1</u>	<u>Probable Period 2</u>
Recreation, Cultural Inventory	A02	Acres	8,500	0
Facility and Site Construction/ Reconstruction	A05/A06	PAOT	1,400	0
Facility Site Management	A07	PAOT Days	1,947,900	2,067,700
Use Administration	A08	PAOT Days	13,911,500	15,367,000
Soil & Water Imprv.	F03	Acres	2	2
Resource Improvement Maintenance	F08	Projects	1	1
Monitoring	F09	Plans	8	9
Dam Administration and Management	L28	Dams	8	8
Cooperative Law Enforcement	P25	Patrol Units	6	6

Management
Area 4
Pastures

Description

This 3,500-acre (nearest 100 acres) management area consists of improved pastures scattered over Main Division, Lee Creek and Wedington Units, Sylamore and St. Francis districts near old home sites. Topography ranges from river bottoms to ridge tops, 0-35 percent slope, with moderate to high productivity. Species are primarily cool season forage (clover, fescue and orchard grass). All 3,500 acres are unsuitable for timber production.

Goals

Provide sustained grazing opportunities to meet local needs compatible with other resource uses.

Direction

Concentrate grazing on pastures. Improve warm season forage (bermuda, bahia, dallisgrass or others). Resolve conflicts between wildlife and livestock use on this area in favor of livestock.

Management Prescriptions, Activities and Requirements

Prescription 501 applies to this 3,500-acre management area. Management activities and requirements follow:

Recreation. Provide roaded natural experience on about 2,500 acres and rural experience on about 1,000 acres.

Visual. The VQO is modification.

Wildlife and Fish. Improve wildlife habitat primarily for birds, small mammals and deer compatible with high livestock production. Limit pastures to less than half of any section and individual open pastures to 60 acres.

Range. Based on inventories and allotment management plans disc, fertilize, plant forage, control non-forage species, provide water sources, fences, cattle guards and use rotational grazing.

Timber. Since pastures are unsuitable for timber management, silvicultural practices on these areas are to enhance forage production, provide shade for livestock or habitat for wildlife.

A prescription and site specific range allotment plan will determine cutting methods.

Prescribed Burning will be used periodically according to site specific range allotment plans.

Wildfire. Use containment or control on all wildfires.

TABLE 4-4

Proposed and Probable Activities - Management Area 4

<u>Activity</u>	<u>MTH</u>	<u>Units</u>	<u>Proposed Period 1</u>	<u>Probable Period 2</u>
Recreation, Cultural Inventory	A02	Acres	3,400	0
Range Resource Planning	D01	Plans	60	60
Inventory	D02	Acres	3,500	3,500
Range Non-Structural Improvement	D03	Acres	14,000	14,000
Range Non-Structural Improvement Maintenance	D04	Acres	0	14,000
Range Structural Improvement	D05	Structures	190	190
Range Structural Improvement Maintenance	D06	Structures	0	190
Range Administration and Management	D07	Cases	150	150

Management Area 5 Experimental Forests

Description

This 4,900-acre management area includes the 700-acre Henry R. Koen Experimental Forest north of Jasper, Arkansas and the 4,200-acre Sylamore Experimental Forest on the Sylamore District. The Southern Forest Experiment Station (SFES) administers both areas. Since these areas are research oriented, they are not scheduled for management practices normally applied to other Forest areas.

Goals

- Goals for these areas are to—
- evaluate effects of hardwood silvicultural practices on water quality and yield, soil loss, site productivity, revegetation, growth response and wildlife habitat.
 - provide information about management of dense, pole-size hardwood stands with emphasis on increasing growth rates and providing natural regeneration at harvest.
 - develop information for enhancing wildlife habitat.

Direction

Cooperate and assist the SFES, where feasible, to implement goals for this area.

Develop and recommend to Director, SFES, a study whose main objective is to evaluate operational uneven-aged silvicultural systems on large areas with timber production as a prime consideration.

Management Prescriptions, Activities and Requirements

Prescription 1800 applies to this 4,900-acre management area. Management activities and requirements follow:

General. All research activities are permissible on this area. The Director will prescribe or approve all management activities.

Recreation. Manage for roaded natural ROS experiences that are compatible with research activities. Prohibit ORV use, recreation development, and dispersed recreation activities that conflict with research.

Visual. The VQO is modification.

Wildlife and Fish. Conduct wildlife habitat improvement only for research.

Range. Allow livestock use only for research.

Timber. Ozark-St. Francis National Forests will assist, where feasible, to implement timber management activities on this area. Since these Experimental Forests are research oriented, the Forest will coordinate all silvicultural and tree cutting activities through the Research Unit.

Minerals. Allow mineral exploration, leasing and development on acquired land when no conflict with research exists.

Wildfire. Use control strategy for all wildfires.

TABLE 4-5

Proposed and Probable Activities - Management Area 5

<u>Activity</u>	<u>NIH</u>	<u>Units</u>	<u>Proposed Period 1</u>	<u>Probable Period 2</u>
Recreation, Cultural Inventory	A02	Acres	0	4,900

Management
Area 6
Administrative
Sites

Description

This management area contains less than 100 acres, and includes offices, work centers, lookout towers, communications towers and Cass Job Corps Center. These areas are considered unavailable, and therefore unsuitable for timber management.

Goals

To provide and maintain facilities for administering the Forests.

Direction

To provide and maintain safe, attractive facilities (FS: 7300, 7316).

Management Prescriptions, Activities and Requirements

Prescription 1800 applies to this management area. Management activities and requirements follow:

Wildlife and Fish. Encourage non-consumptive wildlife.

Range. Prohibit livestock use.

Timber. Since all administrative sites are unavailable and therefore unsuitable for timber management, tree cutting in this management area is to enhance site appearance, safety and vegetative vigor. Reasons to remove trees on these sites include—

- removing dead and dying trees.
- providing space for access roads, parking areas, buildings and utilities.
- providing sunlight for grass, shrubs and small trees.

Appropriate cutting methods include selecting individual trees and small tree groups for removal in both hardwood and pine types. A prescription will determine cutting methods. Prune and fertilize individual trees to improve form, condition or provide sunlight for lawns. Treat high-visibility administrative sites to improve aesthetics.

Minerals. Prohibit common variety and surface occupancy mineral exploration and mining operations. Evaluate sites on lands reserved from Public Domain for withdrawal from mineral entry and leasing.

Facilities. Provide landscape planting and maintenance plans for all sites.

Wildfire. Apply control measures to all structure fires and confine all ground fires to the site.

Insects and Disease. Treat individual trees and shrubs to maintain health and vigor.

TABLE 4-6

Proposed and Probable Activities - Management Area 6

<u>Activity</u>	<u>MIH</u>	<u>Units</u>	<u>Proposed Period 1</u>	<u>Probable Period 2</u>
Recreation, Cultural Inventory	A02	Acres	100	0

Management Area 7
Special Interest Areas

Description

This 23,100-acre (nearest 100 acres) management area includes sites with unique scenic, geological, botanical or cultural values including—

- Alum Cove Natural Bridge - 200 acres.
- Blue Hole - 2,200 acres.
- City Rock Bluff - 300 acres.
- Clifty Canyon - 5,100 acres.
- Devil's Canyon - 1,400 acres.
- Dismal Creek - 200 acres.
- Dismal Hollow - 2,000 acres.
- Hare Mountain - 100 acres.
- Magazine Mountain - 5,600 acres.
- North Twin - 2,400 acres.
- Pedestal Rocks - 500 acres.
- Penhook - 400 acres.
- Sam's Throne - 600 acres.
- Sandstone Hollow - 500 acres.
- Stack Rock - 400 acres.
- Waldo Mountain-Wainscott Bottoms - 400 acres.
- White Rock - 700 acres.
- other smaller sites including Buzzard Roost Rocks, Sugarloaf Mountain, upland swamps and others - 100 acres.

These areas are considered unavailable, and therefore unsuitable for timber management.

Goals

To protect and enhance sensitive scenic, geological, botanical and cultural features on the Forests.

Direction

Designate Clifty Canyon and Dismal Hollow as Botanical Areas. Coordinate with the Arkansas Natural Heritage Commission to identify, protect, study and manage the distinctive characteristics of these sites, and to evaluate Clifty Canyons,

Dismal Hollow and Magazine Mountain for potential Research Natural Area designation.

Identify these sites in compartment prescription records with appropriate management direction.

Management Prescriptions, Activities and Requirements

Prescription 600 applies to this management area. Management activities and requirements follow:

Recreation. Provide semi-primitive non-motorized to roaded natural range of opportunities.

Visual. Manage Clifty Canyons and Dismal Hollow for a VQO of preservation. Manage other sites for VQO retention.

Trails. Manage trails to protect unique resources. Maintain Alum Cove National Recreation trail at level 4 (see "Trails South", Level 4).

Wildlife and Fish. Provide no new habitat improvements. Maintain existing wildlife habitat improvements.

Range. Prohibit livestock use.

Timber. Other resource considerations make these areas unavailable, and therefore unsuitable for timber management. However, tree cutting will occur where necessary to improve conditions for sensitive plants or animals, enhance features or for safety. Appropriate cutting methods include selecting individual trees and small tree groups in both hardwood and pine types. A prescription to meet unique plant, animal or feature needs will determine cutting needs and methods.

Minerals. Prohibit common variety minerals operations and mineral exploration or mining surface occupancy.

Special Uses. Prohibit special uses which detract from or conflict with unique natural features.

Boundaries. Locate boundaries on natural features (bluff lines, ridges, benches, streams, elevation contours, etc.) where practical.

Facilities. Restrict motorized travel to designated routes. Locate parking, picnicking and sanitation facilities at access points. Construct no new roads in these areas.

Wildfire. Use control strategy for all wildfires.

Insect and Diseases. Allow forest insects and diseases to follow a natural course unless they threaten sensitive resources or adjacent lands.

TABLE 4-7

PROPOSED AND PROBABLE ACTIVITIES - MANAGEMENT AREA 7

<u>Activity</u>	<u>MIH</u>	<u>Units</u>	<u>Proposed Period 1</u>	<u>Probable Period 2</u>
Recreation, Cultural Inventory	A02	Acres	0	23,100
Trail Maintenance	A12	Miles	1	1

Management
Area 8
General
Forest

Description

This 1,031,900-acre management area includes Forest land not in other management areas. These lands have a range of environments determined by soil, slope, aspect, elevation, physiographic site and climatic factors which are available for various degrees of resource management.

Area contains 287,700 acres not suitable and 744,200 acres suitable for timber production.

Goals

Administer the area in compliance with the Multiple-use Sustained Yield Act of 1960.

Direction

Produce a balanced, cost effective high level of renewable resource outputs in perpetuity without impairing land productivity.

Management Prescriptions, Activities and Requirements

Forestwide management requirements apply to prescriptions for Management Area 8 which are grouped by pine and hardwood. Pine prescriptions are discussed separately from hardwood prescriptions.

Pine Management Prescriptions. The following prescriptions apply to lands managed for pine.

<u>Prescription</u>	<u>Rotation</u>	<u>Acres</u>
114 WOR	60	98,300
	90	55,200
	100	34,900
	110	400
125	60	2,000
	110	3,100
1514	50	6,800
	70	100
	110	1,500
1521	50	24,600
	110	200
1525	50	27,400
	60	27,500
	70	26,000
	80	4,600
	90	1,100
	100	6,700
1710	110	3,400
	100	3,000
1925	60	2,500
2010	100	7,500

General management requirements below apply to all pine prescriptions as do Forestwide Management Requirements. Additional requirements for prescriptions 1710 and 2010 are addressed separately.

Recreation. Provide semi-primitive motorized to roaded natural opportunities.

Timber. Appropriate harvest cutting methods for pine types are clear cutting or seed tree cutting. In stands classed as retention VCO, harvest cuts will be modified by reducing stand size and increasing use of seed tree cutting. Commercial thinnings, non-commercial thinnings, release and weeding are all appropriate practices when indicated by silvicultural examination. Tractor, wheeled skidder or animal logging methods are appropriate except on sustained slopes above 35% where cable yarding is required. Site preparation includes chemical, mechanical, prescribed burning or hand methods. Heavy mechanized site preparation equipment and prescribed burning will not be used on sustained slopes above 35%. Regeneration is by natural or artificial means.

Specific requirements by prescription are:

Prescription 1710. Restrict motorized recreation use to protect wildlife habitat. Feature non-game species adjacent to developed recreation areas. Prescribe burn pine stands at intervals recommended in FSH 2609.23, but not between March 15 and June 15. Limit harvest cutting to 10-20 acre stands. Regeneration will be by planting using wide spacing. Thin stands at 5 year intervals between ages 20 and 80 and at 10 year intervals thereafter. Reduce basal area to 50 square feet at each thinning. No grazing is allowed.

Prescription 2010. Same as 1710 except that transitory grazing is permitted.

Hardwood Management Prescriptions:

The following prescriptions apply to lands which are to be managed for hardwood.

<u>Prescription</u>	<u>Rotation</u>	<u>Acres</u>
214	60	6,800
	80	16,600
	90	26,900
	100	25,200
	110	15,600
	120	34,800
214 XTH	100	15,500
	110	5,400
	120	18,800
321	90	700
	110	900
	140	2,900
701	120	73,100
703	140	1,600
703 XTH	60	2,500
	70	5,200
	80	1,800
	90	2,800
	100	100
	110	200
	120	1,100
	130	2,500
	140	1,400
	150	500
	160	1,400
	170	1,000
	180	2,200
190	2,500	
200	24,500	
2020	200	17,000
2100	60	2,000
	70	2,500
	80	500
2200	N/A	85,000

General management requirements below apply to all hardwood prescriptions as do Forestwide Management Requirements. Additional requirements for prescriptions 321, 701, 703 and 703XTH are addressed separately.

Recreation. Provide semi-primitive to roaded natural opportunities.

Visual. These areas have retention, partial retention, modification or maximum modification VQO objectives. Follow visual resource handbook requirements.

Timber. Appropriate harvest cutting methods are clearcutting, shelterwood or group selection. Use clearcutting and shelterwood in areas having partial retention, modification or maximum modification VQO.

In stands with a retention VQO or located in a riparian area (85,000 acres) use group selection (prescription 2200) as the cutting method. Manage stands to produce an old growth condition. Cutting cycle length is 20 years. Group size will range from 1/4 acre to 1 acre with 1/2 acre groups being desired. Mark stands designated to receive a group selection cut to scatter the 1/4 to 1 acre groups throughout the stand. Groups should comprise about 1/6 of the stand area.

Commercial thinning, non-commercial thinning, release and weeding are appropriate cultural treatments when indicated by silvicultural prescription. Use tractors, wheeled skidders or animals for logging except on sustained slopes over 35% where cable yarding is used. Do site preparation by chainsaw or mechanical slash-down with limited herbicide use to selectively reduce competition from unwanted species such as red maple. Use prescribed burning for site preparation on a limited basis where it is desirable to reduce logging slash. Regeneration is natural from sprouts and advanced regeneration. Underplanting may be used to increase numbers of young stems in stands nearing maturity where advanced regeneration is lacking or inadequate.

Soil and Water. Use cable yarding and no heavy site preparation equipment or prescribed burning on sustained slopes over 35%. In retention VQO areas, use natural materials for shoreline and streambank stabilization.

Specific requirements by prescription are:

Prescription 321. This prescription applies on low quality sites. No site preparation will be done following harvest cutting.

Prescriptions 701, 703 and 703XTH. Retain sufficient dogwood, viburnum, grape, chinquapin or other plants as needed to maintain aesthetics or wildlife habitat during harvesting or site preparation activities.

TABLE 4-8

Proposed and Probable Activities - Management Area 8 - General Forest Area

Activity	MIB	Units	Proposed Period 1	Probable Period 2
Recreation Planning	A01	Plans	4	0
Recreation Inventory	A02	Acres	999,400	0
Cultural Resource Inventory Evaluation Assessment, Protection and Enhancement	A03/A04	Properties	20	20
Trail Construction/ Reconstruction	A10/A11	Miles	103	84
Trail Maintenance	A12	Miles	217	293
Visual Resource Monitoring	A14	Reports	10	10
Visual Resource Planning	303	Plans	2	2
Non-Structural Habitat Improvement	C02	Acres	13,030	15,400
Structural Habitat Improvement and Maintenance	C03/C04	Structures	420	100
Range Resource Planning	D01	Plans	55	55
Timber Management Resource Planning and Inventories	E00	Plans	4	4
Regeneration Harvest	E01	Acres	52,000	48,200
Intermediate Harvest and Other Changes	E02	Acres	67,000	112,900
Silvicultural Exam and Prescriptions	E03	Acres	1,110,000	1,110,000
Reforestation	E04	Acres	52,000	48,200
Timber Stand Improvement	E05	Acres	112,900	67,900
Timber Sale Preparation and Administration	E06/E07	MCF	108,000	135,000
Soil, Water and Air Inventory	F01	Acres	30,000	30,000
Planning	F02	Plans	100	100
Improvement and Maintenance	F03	Acres	248	248
Monitoring	F09	Plans	342	341
Processing Lease Applications	G04	Leases	2,650	2,310
Property Boundary Location	J06	Miles	1,403	310
Property Landlines Maintenance	J05	Miles	2,000	3,553
Land Exchange	J13	Acres	8,000	8,000
Land Acquisition	J15	Acres	4,400	4,000
Arterial and Collector Road Reconstruction/Construction	L04/L05 L09/L10	Miles	30	30

TABLE 4-8, continued

Proposed and Probable Activities - Management Area 3 - General Forest Area

<u>Activity</u>	<u>Code</u>	<u>Units</u>	<u>Proposed Period 1</u>	<u>Probable Period 2</u>
Local Road Reconstruction/ Construction	L12/L13	Miles	670*	900*
Road Management Operation and Maintenance	L19	Miles	3,800*	3,800*
Dam Administration and Management	L28	Dams	5	5
Fire Management Planning and Analysis	P01	Plans	80	80
Prevention, Detection and Suppression	P02/P03 P08	Dollars	6,800,000	6,800,000
Fuel Treatment and Fuel Breaks	P11/P14	Acres	5,000	5,000

*All road miles included in this management area for simplicity.

FOREST MANAGEMENT OBJECTIVES

Forest management objectives, or annual resource targets with their projected average annual costs and returns to meet forest management goals and address ICO's are in Table 4-9.

A projected budget is provided for each period to implement the Forest Plan. Congress may authorize a different budget or activity mix. Therefore, short-range objectives are flexible enough to accommodate varying budgets, while long-range objectives are rigid enough to guide annual budget requests to ensure Plan implementation.

Timber Resource Summaries

Table 4-10 shows the Forests' Land Classification. Vegetation management practices are in Table 4-11. Table 4-12 provides the Timber Productivity Classification. Allowable Sale Quantity is in Table 4-13. Figure 4-1 shows Long-Term Sustained Yield Capacity and Allowable Sale Quantity. Appendix Table 7-1 provides the 10-year timber sale plan, based on current conditions information, inventories and silvicultural prescriptions available when the Plan was developed. The 10-year timber sale plan will be updated annually by July 1 to reflect new silvicultural prescription data by compartment, with acreage and volume by harvest method, to be sold in the next fiscal year. Actual acre marked for a sale may vary from those in the sale plan. Significant changes (\pm 20 percent of individual regeneration are size or change in type of cut) will require an amended prescription.

Other Resource Summaries

Tables 7-2, 3 and 4 summarize other forest resource scheduling.

TABLE 4-9

Projected Average Annual Yields, Costs and Returns

Program Element and Activity	Unit of Measure	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021- 2030
RECREATION						
Developed Recreation Use	Thousand RVD	552	690	853	1,007	1,150
Dispersed Recreation Use	Thousand RVDs *	853	1,017	1,199	1,377	1,581
Semi-primitive Non-motorized	Thousand RVDs	17	25	35	42	50
Semi-primitive Motorized	Thousand RVDs	330	395	456	525	601
Roaded Natural	Thousand RVDs	655	785	938	1,080	1,240
Rural	Thousand RVDs	403	502	623	737	840
Visual Quality	Thousand Index Units	694	765	808	815	738
WILDERNESS						
Wilderness Management	Thousand Acres	66.8	66.8	66.8	66.8	66.8
Wilderness Use	Thousand RVD's	14.0	22.4	30.0	39.5	48.0

* Includes Hunting and Fishing Use

TABLE 4-9, continued

Projected Average Annual Yields, Costs and Returns

Program Element and Activity	Unit of Measure	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021- 2030
<u>WILDLIFE AND FISH HABITAT CAPACITY</u>						
Deer	Thousand Index Units	5.4	5.7	6.0	5.8	5.5
Turkey	Thousand Index Units	4.0	4.0	4.1	4.2	4.1
Squirrel	Thousand Index Units	34.7	41.8	48.3	57.3	77.0
Fish Use	Thousand WFUD's	63.2	66.6	68.5	70.9	73.3
Wildlife Use	Thousand WFUD's *	285.4	320.5	353.5	385.8	457.8
Old Growth Prescription Allocation	Thousand Acres **	150	150	150	150	150
<u>RANGE</u>						
Range Use	Thousand AUM's	30.0	30.0	29.6	30.0	29.9
Forage	Thousand Tons	126	125	126	125	114

* Also included in Dispersed Recreation Use

** Includes 85 thousand acres of group selection

TABLE 4-9, continued

Projected Average Annual Yields, Costs and Returns

Program Element and Activity	Unit of Measure	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021- 2030
TIMBER						
Allowable Sale Quantity	MMCF	9.6	12.0	15.0	18.7	21.7
	MMBF *	60.0	75.0	93.8	116.9	135.6
Reforestation	Thousand Acres	5.2	4.8	4.9	7.1	14.0
Timber Stand Improvement	Thousand Acres	11.3	6.8	9.8	6.8	10.0
WATER						
Meeting Water Quality Goals	Million Acre-Feet	1.77	1.74	1.74	1.74	1.75
MINERALS						
Mineral Leases and Permits	Operating Plans	287	243	219	125	81
PROTECTION						
Fire Management Effectiveness Index	Dollars per Thousand Acres	730	730	730	730	730
Fuel Breaks and Fuel Treatment	Thousand Acres	5	5	5	5	5

* Cubic Foot to Board Foot Conversion Factor is 6.25

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TABLE 4-9, continued**Projected Average Annual Yields, Costs and Returns**

Program Element and Activity	Unit of Measure	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021- 2030
LANDS						
Land Purchase and Acquisition	Acres	480	400	400	200	100
Land Exchange	Acres	800	800	800	400	200
Property Boundary Lines	Miles	160	60	2.0	1.5	1.0
SOILS						
Soil and Water Resource Improvement	Acres	25	25	4	0	0
Soil and Water Improvement Maintenance	Acres	128	128	128	128	128
ROAD WORK						
New Construction	Miles	5	3	1	1	0
Realignment	Miles	25	36	25	4	0
Betterment and Restoration	Miles*	37	51	82	126	121
Total	Miles*	67	90	108	131	121

* Includes 3 miles of work on main roads (arterials and collectors)

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TABLE 4-9,

Projected Average Annual Yields, Costs and Returns

Program Element and Activity	Unit of Measure	1986- 1990	1991- 2000	2001- 2010	2011- 2020	2021- 2030
ESTIMATED COSTS						
Forest Total*	Million Dollars	10.46	13.05	13.45	14.93	15.94
ESTIMATED REVENUE						
	Million Dollars	3.83	4.41	5.13	5.87	5.99

TOTAL PNW AT 4% = 523.7 (MM\$)

LONG-TERM SUSTAINED YIELD CAPACITY = 283.0 (MMCF)

PERCENT GROWTH OF LONG-TERM SUSTAINED YIELD CAPACITY = 76

THE REASON THAT GROWTH IN 2030 DOESN'T EXCEED 90 PERCENT OF LONG-TERM SUSTAINED YIELD CAPACITY IS THAT GROWTH IS LOWER UNDER "EXISTING" PRESCRIPTIONS (WHICH ARE USED MORE BEFORE 2030) THAN UNDER "REGENERATION" PRESCRIPTIONS. AS MORE "REGENERATION" PRESCRIPTION MANAGEMENT REPLACES "EXISTING" PRESCRIPTION MANAGEMENT AFTER 2030, GROWTH WILL EXCEED LONG-TERM SUSTAINED YIELD CAPACITY.

*** ALLOCATED AND KV FUNDS - 1978 DOLLARS**

Table 4-10

Land Classification

<u>Classification</u>	<u>Acres</u>
1. Non-Forest land (includes water)	16,000
2. Forest Land	1,123,400
3. Forest land withdrawn from timber production	66,800
4. Forest land not capable of producing crops of industrial wood	13,100
5. Forest land physically unsuitable: irreversible damage likely to occur, not restockable within 5 years	0
6. Forest land - inadequate information *	0
7. Tentatively suitable forest land (Item 2 minus Items 3, 4, 5 and 6)	1,043,500
8. Forest land not appropriate for timber production **	299,300
9. Unsuitable forest land (Items 3, 4, 5, 6 and 8)	379,200
10. Total suitable forest land (Item 2 minus Item 9)	744,200
11. Total National Forest land (Items 1 and 2)	1,139,400

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

** Lands identified as inappropriate for timber production because of:
(1) assignment to other resource uses to meet Forest Plan objectives;
(2) management requirements; or (3) not being cost efficient in meeting Forest Plan objectives over the planning horizon.

Table 4-11

Vegetation Management Practices

Practice	Acres*	
	Pine	Hardwood
Regeneration harvest:		
Clearcut	2,000	1,250
Seedtree	1,000	
Shelterwood		250
Group Selection **		700
Commercial thinning	5,400	1,300
Timber stand improvement	9,700	1,600
Reforestation ***	3,000	2,200

* Estimated annual average first decade for suitable lands.

** Applying group selection to about 85,000 hardwood stand acres will cause about 700 acres of small group cuts scattered throughout the stands annually.

*** Includes natural and artificial. Replanting not included.

Table 4-12

Timber Productivity Classification

Potential Growth (cf/acre/year)	Suitable Lands (acres)	Unsuitable Lands (acres)
Less than 20	0	13,100
20-49	46,600	247,200
50-84	305,700	113,300
85-119	390,900	5,600
120-164	1,000	0
165-224	0	0
225-	0	0

Table 4-13

Allowable Sale Quantity and Timber Sale Program Quantity *

<u>Harvest Method</u>	<u>Allowable Sale Quantity **</u>	
	<u>Sawtimber</u> (M ³ CF)	<u>Other Products</u> (M ³ CF)
Regeneration harvest:		
Clearcut	3.723	0.442
Shelterwood and seed tree	1.200	0.100
Group selection	1.608	0.217
Intermediate harvest:		
Commercial thinning	1.479	0.831
Totals	8.010	1.590

Allowable sale quantity 9.6 MMCF (60 MMEF)
 Timber sale program quantity 9.6 MMCF (60 MMEF)

* Annual average for first decade.

** Includes only chargeable volumes from suitable lands.

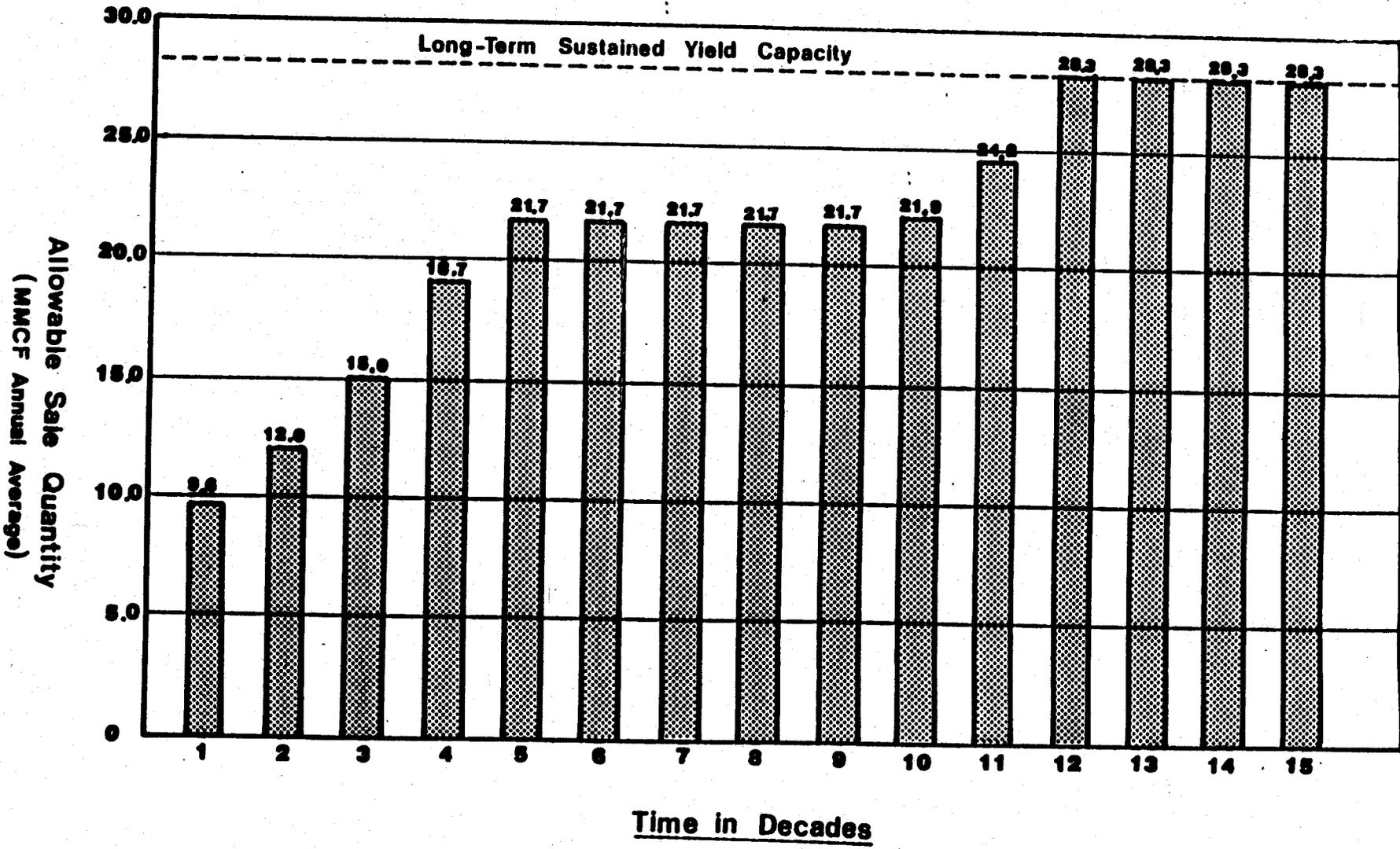


Figure 4-1 Display of Long Term Sustained Yield and Base Sale Schedule

THE FORESTS'
FUTURE
CONDITION

Overview

This section highlights trends and describes expected conditions from implementing the Ozark-St. Francis Plan.

Future conditions are described by resource element. Assumptions for all elements include adequate funding to meet resource targets while following management requirements.

Recreation

A good balance of ROS opportunities is provided with adequate facilities in place to meet developed and dispersed recreation needs.

North Sylamore Creek, Shores Lake, Wedington, and Spring Lake recreation sites are expanded, and a swimming/picnicking facility is developed at Natural Dam. These additions add 800 Persons At One Time (PAOT) of camping, 300 PAOT of picnicking, and 350 PAOT of swimming. During each decade, about one-fourth of the recreation site capacity is rehabilitated or reconstructed to meet needs and demands. New and reconstructed facilities are built to experience levels 3 and 4.

Ozark Highlands Trail is complete with connecting trails from access points and recreation sites. Horseback trails and a motorbike trail are constructed on the Boston Mountain District. Total trail miles expanded to about 225.

New canoe access points are constructed on Mulberry River and Big Piney Creek adding 100 PAOT capacity.

About 76,000 acres are classified non-motorized semi-primitive; 350,000 acres are semi-primitive motorized; 708,000 acres are roaded natural; and 6,000 acres are rural level.

Visual

New and expanded recreation sites add structures to the landscape on 50 to 100 more acres. Wildlife food plot, clearcut, shelterwood, seedtree, group selection, road and gas well clearings average about 7,000 acres annually. Contrasting vegetative openings in forest panoramic and aerial views provide landscape variety.

Visual Quality Objective acres change over time as the following chart indicates.

<u>VOO's</u>	<u>Existing Visual Condition (EVC)</u>	<u>Future Visual Condition (FVC)</u>	<u>Percent Change</u>
	<u>Acres</u>	<u>Acres</u>	
Preservation	67,200	81,000	21% increase
Retention	111,400	140,000	27% increase
Partial Retention	289,500	363,000	25% increase
Modification	553,400	456,000	18% decrease
Maximum Modification	118,000	100,000	15% decrease

As use increases, visible areas gradually become more sensitive near expanded and new recreation sites and along major forest travel routes.

Cultural Resources

The sample cultural resource inventory is half completed. Sites appearing suitable for National Register of Historic Places are nominated. Narrows Rockshelter and Gustafson Cave are designated as National Historic Places. Some of the 30 caves or rockshelters, and Moore Village Site are candidates for National Register. As funds, manpower, and priorities permit, sites are developed for education and interpretation.

Special Interest Areas

Clifty Canyons (Stewart's Fork, Clifty Canyon, Cole Fork and Cap Fork) and Dismal Hollow are designated Botanical Areas. Alum Cove, Natural Bridge, Blue Hole, Buzzard Roost Rocks, City Rock Bluffs, Devil's Canyon, Dismal Creek, Hare Mountain, Magazine Mountain, North Twin, Pedestal Rocks, Penhook, Sam's Throne, Sandstone Hollow, Stack Rock, Sugarloaf Mountain, Waldo Mountain-Wainscott Bottoms and White Rock are managed as Special Interest Areas. Turkey Ridge is managed as a Research Natural Area.

Other sensitive feature or plant sites are identified in cooperation with Arkansas Natural Heritage Commission in the silvicultural prescription process, where protective or enhancement measures are prescribed on a case by case basis.

Wild caves are classified and managed for unique features and endangered species habitat.

Wilderness

Upper Buffalo, Hurricane Creek, Richland Creek, Leatherwood, and East Fork Wildernesses are not used to maximum capacities; therefore, user restrictions are not applied.

Wildlife And Fish

Early successional wildlife species habitat capacity is considerably above current levels. Late successional wildlife species habitat capacity increases also.

Older tree groups scattered across the Forest, five wilderness areas and low intensity management acres provide late successional stage habitat.

Fish habitat increases with improved management.

All wildlife species populations are maintained well above the minimum viable population levels.

Threatened,
Endangered or
Sensitive Species

Population levels will preclude specialized listing through implementation of activities to meet legal mandates including those provided in recovery or interim management plans. Practices to accomplish this include; cooperating with appropriate agencies to prepare management guidelines, inventories, surveys, critical or essential habitat access control and coordination of Forest management activities to ensure habitat protection or improvement.

Range

About 30,000 AUM's of livestock grazing is provided annually on about 3,500 managed pasture acres. Transitory grazing occurs on 6,600 pine-type acres.

Timber

Timber future condition is best described by identifying acres by age class at time intervals shown in tables 4-14, 4-15, and 4-16.

Current, 10, 50 and 150-year age class structures are compared in Tables 4-14 for pine and 4-15 for hardwood.

Present and future growing stock annual net growth and average rotation, are shown in Table 4-16.

TABLE 4-14

Present and Future Pine Age Class Distribution Acres

<u>Timber Age Class *</u>	<u>Current</u>	<u>Year 10</u>	<u>Year 50</u>	<u>Year 150</u>
0-10	52,900	33,100	82,500	66,900
10-20	64,300	52,900	46,900	67,100
20-30	39,100	64,300	33,400	65,100
30-40	100	39,100	37,900	85,900
40-50	11,800	100	33,100	52,000
50-60	35,600	11,800	45,400	100
60-70	121,100	29,600	58,200	0
70-80	0	94,000	1,500	0
80-90	18,500	0	0	0
90-100	4,800	18,500	1,400	0
100-110	0	4,800	3,300	0
110-120	0	0	4,100	0
120-130	0	0	0	0
130-140	0	0	300	0
140-150	0	0	0	0
150-160	0	0	0	1,100
160-170	0	0	0	4,200
170-180	0	0	0	400
180-190	0	0	0	0
190-200	0	0	0	1,400
200-210	0	0	0	3,300
210-220	0	0	0	400
220-230	0	0	0	0
230-240	0	0	0	300
240-250	0	0	0	0
250-260	0	0	0	0

* As stands age beyond 120 years, natural mortality of the pines will result in species composition changes so that many of those stands may no longer be properly classified as pine timber types.

TABLE 4-15

Present and Future Hardwood Age Class Distribution Acres

<u>Timber Age Class *</u>	<u>Current</u>	<u>Year 10</u>	<u>Year 50</u>	<u>Year 150</u>
0-10	11,000	15,000	50,200	18,200
10-20	4,000	10,900	16,700	3,700
20-30	14,200	4,000	8,700	19,600
30-40	1,900	14,200	3,400	8,500
40-50	0	1,900	15,000	24,300
50-60	206,600	0	10,600	22,500
60-70	423,700	206,700	4,000	21,900
70-80	12,000	413,600	13,400	44,500
80-90	17,300	12,000	1,900	45,100
90-100	69,600	12,400	0	38,800
100-110	1,200	69,600	162,400	36,800
110-120	0	1,200	388,200	4,100
120-130	0	0	11,000	2,500
130-140	0	0	10,400	2,500
140-150	0	0	64,400	2,500
150-160	0	0	1,200	1,800
160-170	0	0	0	3,500
170-180	0	0	0	2,200
180-190	0	0	0	200
190-200	0	0	0	0
200-210	0	0	0	103,400
210-220	0	0	0	285,000
220-230	0	0	0	1,600
230-240	0	0	0	1,400
240-250	0	0	0	10,100
250-260	0	0	0	56,800

* As stands age beyond 120 years, natural mortality will result in species composition changes which may favor the less commercially desirable shade tolerant species.

TABLE 4-16

Present and Future Growing Stock, Annual Net Growth and Rotations

	Unit of Measure	Suitable Land	Unsuitable Land
Present forest: Growing stock	MMCF	834.2	471.0
	MMBF	5213.8	2943.8
Live cull	MMCF	—	—
	MMBF	—	—
Salvable dead	MMCF	—	—
	MMBF	—	—
Annual net growth *	MMCF	46.8	23.9
	MMBF	292.5	149.4
Annual mortality	MMCF	3.7	1.9
	MMBF	23.1	11.9
Future forest: Growing stock	MMCF	1170	
Annual net growth *	MMCF	28.3	
Rotations **			
Pine	Years 50 to 110		
Hardwood	Years 60 to 200		

* Present forest growth represents the difference between actual field inventories less drain. Future forest growth represents difference between 14th and 15th decade inventories plus drain projected by FORPLAN model. (Model construction weaknesses and inputs cause some of the differences between present and future growth amounts.)

** Rotation age range for regenerated stands on lands with timber emphasis by major forest types.

Water and
Soils

Forest water quality meets state and federal standards. Where needed, special treatments improve soil productivity and water quality.

Floodplains, wetlands and riparian areas are maintained or enhanced to protect their unique soil, water, vegetation, fish and wildlife resources.

Water volume is 1.78 million acre feet annually.

Free flowing stream or reservoir options remain open to individual analysis for all streams.

Minerals

Natural gas leases and production increases, then levels off within 10 years. Surface resource management conflicts are resolved on a case by case basis.

Good road surfacing material is scarce in desirable locations. Good sources are located and used as needed with other resource values considered.

Surface field stone sales continue at about 3,500 tons annually.

Renewable resource allocations affect minerals activities little. Mineral activities occur on less than one-half of one percent of the Forest land base at any time.

Lands

Land ownership adjustments achieve the best wilderness, recreation, watershed and timber management needs by consolidating public ownership within wilderness areas; meeting water oriented recreation needs and resolving administrative problems.

Scattered isolated government tracts with low recreation potential, that block community development or that resolve ownership disputes are exchanged for other lands.

Rights-of-way are acquired for trails, recreation access and other resource uses.

Land consolidation reduces fire risks, trespass, landlines and needed rights-of-way, and private-Federal property boundary conflicts.

Special Uses

Additional special uses are added to supply goods and services as needs arise. Some special private uses are terminated.

Roads

The Forests are well roaded. Existing roads reduce from about 4,000 to 3,800 miles as unneeded roads are returned to a forested condition. About 1,000 miles of old woods roads serving resources are retained and managed for dispersed recreation, hunting and logging. Across the Forests 80% of the roads are open to full service and 20% are intermittent service (closed part of the time).

Main (arterial and collector) roads are completed, but some require periodic reconstruction.

Fire
Protection

Wildfires are suppressed to protect life, property, private lands, air, water, soil productivity and resource values.

Prescribed burning is applied to improve wildlife habitat, increase grazing and facilitate timber management.

The Forest fire organization and its cooperators maintain an up-to-date, aggressive, coordinated prevention and suppression program.

Insect and
Disease

Integrated pest management will help maintain vigorously growing forests except where trees allocated to old growth or on unsuitable lands become increasingly susceptible to insect and disease attack as they approach biological maturity.

Social and
Economic

Social and economic conditions remain stable with slight population and income increases.

- expected monitoring precision and reliability.
- evaluation reporting time.
- variances from planned actions, effects or resource production requiring plan revision, amendment, or management direction change.

The annual monitoring action programs will be prepared with the Ozark-St. Francis National Forests' program of work. The annual program of work will include monitoring amounts and location to be accomplished based on the approved program of work and available monitoring funds. Specific locations, sampling intensity, person-days required, and costs will be identified in the annual program of work.

Monitoring program evaluation results will be documented in annual resource attainment reporting. This evaluation will compare actual production and effects with the Plan's projected production and effects. During the fifth year of the Plan, the interdisciplinary team will make a comprehensive monitoring report review and determine whether conditions or public demands have changed significantly. Based on this review and evaluation, the team will—

- recommend that no action is needed if monitoring indicates goals, objectives, and standards are being achieved.
- refer any recommended management improvement to the appropriate line officer for accomplishment.
- modify management area direction or prescription allocation as a Plan amendment when they cause a significant change.
- recommend and initiate a Plan revision when conditions or public demands have significantly changed.

TABLE 5-1

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would Initiate Further Action
RECREATION						
Developed and VIS Site Use	RIM 3/ use reports, visitor and fee collection counts, MAR 4/.	To compare actual use with projected demand and for site management levels.	Periodic use samples and reported annually.	Mod.	Mod.	Annual use at a specific site less than 5% or more than 45% of theoretical capacity. A total use variance of 15% at 5 year intervals.
Dispersed Area Use	RIM use reports, trail use and traffic counts, and field observations-MAR.	To compare actual use with projected demand & dispersed use management aid.	Periodic use samples and reported annually.	Low	Mod.	When use by ROS class varies more than 15% at end of first 5 year plan interval and when trails, streams, and special areas show excessive use or resource damage.
Developed Site Facility Condition	RIM facility condition reports and field observations.	To ensure safe facility condition and to aid in annual program of work.	Periodic field observations reported annually.	High	High	Deterioration or vandalism at greater than normal rate.

1/ Precision - Variability with which data is collected. Precision is qualitatively rated as High (H), Moderate (M) and Low (L) and are relative terms which may vary between resources.

2/ Reliability - A measure of how dependable the sample or monitoring method is in reflecting the total forest situation. A qualitative three-class system is used to rate reliability as High (H), Moderate (M) and Low (L).

3/ Recreation Information Management

4/ Management Attainment Report

TABLE 5-1. continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would Initiate Further Action
Dispersed Recreation Opportunity Classes	Forest data base with ROS 5/ inventory and prescription applications.	To maintain a wide spectrum of recreation opportunities.	5 year intervals.	Mod.	Mod.	When ROS class acres vary more than 15% at end of first 5 year interval or large annual road construction or timber sale changes.
Off-Road Vehicle Impacts	Measured variance by photographic record at selected points/areas and field observations.	To provide vehicle management direction, resource protection, public safety and to prevent user conflicts.	1-2 times annually.	High	High	Documented user conflicts, photographic record of resource damage, and/or observation of public safety hazards.
Visual Quality	Review projects and activities for compliance with visual quality objectives and Forest data base visual quality index.	To maintain visual quality at public's expectation levels, and to determine objective attainment.	Continuous and 5-year intervals.	Mod.	High	Projects that fail to meet adopted visual quality objective and a visual quality index below Plan objective at 5-year intervals.
Potential Wild & Scenic River Protection	Compartment Prescriptions, EA's & EIS's.	To protect stream and corridor qualities.	Continuous and periodic field reviews.	High	High	Activity affecting free-flowing character or remarkable values.

5/ Recreation Opportunity Spectrum

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TABLE 5-1, continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would initiate Further Action
CULTURAL RESOURCES						
Cultural Resource Compliance and Protection	Review projects and activities for compliance with laws and regulations. Forest Data Base inventory.	To protect cultural resource values from destruction.	Continuous	High	High	Non-compliance with 36 CFR 800 and Forest management requirements.
WILDERNESS						
Wilderness Use/Amount and Distribution	RIM use reports, field observations.	Ensure use does not exceed carrying capacity for fragile use zones.	Periodically and annually.	Mod.	Mod.	Use at 90% of capacity.
Resource Impacts	Periodic field inspections and photos of trails and other concentrated use sites.	Prevent unacceptable wilderness resource impacts.	Annually	High	High	More than 30% exposed soil at campsite areas. Excessive soil erosion on trails or other travelways.
WILDLIFE & FISH						
Wildlife and fish related management requirements	Silvicultural prescription and sale review process CISC §/ inventory data, water quality monitoring data.	Assure proper application of management requirements.	Ongoing silvicultural reviews and sale reviews. Annually	Mod.	High	Any action or combination of actions that results in a deviation from management requirements for more than 10 years or that will impact 1,000 acres or more.

§/ Continuous Inventory of Stand Condition

TABLE 5-1, continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would Initiate Further Action
Management Indicator Species						
White-tailed Deer	Habitat CISC data and additional inventory data on improvements.	Assure maintenance of viable populations of species and determine yield levels in comparison to plan projections.	Annually	High	High	
	Populations Hunt data and Hanson plot removal survey.		Annually	High	Mod.	Forestwide population of 10,000 or less.*
Eastern Wild Turkey	Habitat CISC data and additional inventory of habitat improvements.	To maintain turkey and other associated species populations.	Annually	Mod.	High	
	Populations Hunt data and Arkansas Game and Fish Commission.		Annually	High	Mod.	Forestwide population of 8,000 or less.*
Eastern Gray Squirrel	Habitat CISC data for age mast production species (Hardwoods greater than 50 year old).	To maintain gray squirrel and other associated species populations.	Annually	High	High	
	Populations Hunt data.		Annually	High	Mod.	Forestwide population of 200,000 or less.**

* About 20% above viability threshold.

** About 10% above viability threshold.

TABLE 5-1. continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would Initiate Further Action
Pileated Woodpecker	Habitat Acres with snag habitat.	To maintain pileated woodpecker and associated cavity nesting populations.	Annually	Mod.	High	
	Populations Number of individuals per 640 acre habitat unit.		Annually, if near minimum viable population, otherwise 2-5 years.	Mod.	Mod.	Forestwide population of 3,800 or less.**
Indiana and Gray Bats	Habitat Caves (10).	To assure species diversity and viable populations.	Annually	High	High	Evidence of unauthorized cave entry during hibernation periods.
	Populations Estimates during hibernation period.		3 year interval.	Mod.	High	Indiana Bat - Forestwide populations of 400 or less.* Gray Bat - Forestwide population of 200,000 or less.*
Rufous-Crowned Sparrow	Habitat Monitor acres of habitat.	To assure species diversity and viable populations.	Annually	High	High	
	Populations Observation and call counts.		Annually	Mod.	Mod.	Any sustained decline (3 years) in population trends.

* About 20% above viability threshold.
** About 10% above viability threshold.

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TABLE 5-1, continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would Initiate Further Action
Black Bear	Habitat CISC data and additional inventory of Habitat Improvements.	To maintain a viable population of species and determine harvest.	Annually	High	Mod.	Forestwide population of 60 or less.
	Populations Hunt and survey data from Arkansas Game & Fish Commission.					
Yellow Breasted Chat	Habitat Young stands and regeneration areas.	To assure species diversity and viable populations.	Annually	Mod.	Low	
	Populations Observations.					Any sustained decline (3 years) in population trends.
Red Shouldered Hawk	Habitat Acres with snag habitat.	To assure species diversity.	Annually	Mod.	Mod.	
	Populations Observations					Any sustained decline (3 years) in population trends.

TABLE 5-1, continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would Initiate Further Action
Smallmouth Bass	Habitat Forest stream and water quality.	To assure fish habitat quality and viable populations.	Annual 20% sample	Mod.	Low	A sustained decline (3 years) in population or a sustained reduction in water quality (3 years).
	Populations Electro shocking and stream samples.		Annual 20% sample	Mod.	Low	
Big Eyed Shiner (Boston Mtns.)	Habitat Forest Stream and water quality.	To assure fish habitat and water quality.	Annually	High	Mod.	Sustained reduction (3 years) in water quality leading to a measurable reduction in population.
	Populations Electro shocking and stream samples.					
Ozark Minnow (Sylamore)	Habitat Forest Stream and water quality.	To maintain high quality fish habitat and water quality.	Annually	High	Mod.	Sustained reduction (3 years) in water quality leading to a measurable reduction in population.
	Populations Stream samples.					
Creek Chub (Crowley's Ridge)	Habitat Forest stream and water quality.	To maintain high quality fish habitat and water quality.	Annually	High	Mod.	Sustained reduction (3 years) in water quality leading to a measurable reduction in population.
	Populations Stream samples.					

TABLE 5-1. continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would initiate Further Action
PLANTS						
Ginseng	Permit counts, harvest data and habitat.	Assure minimum viable plant numbers and to maintain plant diversity.	3 year intervals.	Mod.	Mod.	A 10% decrease in either known populations or their habitat.
Alabama Snow-wreath	Field observations of plant numbers and habitat.	(Same as above)	3 year intervals.	Mod.	Mod.	A 10% decrease in the known population.
Ozark Chinquapin	Field observations of plant numbers and habitat.	(Same as above)	3 year intervals.	Mod.	Mod.	A 10% decrease in the known population.
Climbing Magnolia	Field observations of plant numbers and dispersion.	Assure minimum viable plant numbers and to maintain plant diversity.	3 Year intervals	Mod.	Mod.	A 10% decrease in the known population.
RANGE						
Grazing Capacity	Allotment analysis and grazing capacity summary and allotment inspection reports.	To ensure proper stocking rates without causing vegetation or resource degradation.	Annually 20% of active allotments.	Mod.	Mod.	Any reduction of estimated stocking rate greater than 10% compared to previous analysis.

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TABLE 5-1. continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would Initiate Further Action
Range Condition and Trend	Allotment inspection reports and condition and trend pace transects according to FSH 2209.21R8.	Identify trend in vegetation and soil condition on key area of suitable range.	Annually on a minimum of 20% of the active allotments and on all over-grazed areas.	High	Mod.	An increase or decrease of one condition class or an increase in overgrazing resulting in soil erosion on suitable range acres.
TIMBER						
Total Volume Offered	MEF-MAR/TMIS 2/ Forest data bases	To determine objective attainment.	Annually	High	High	A 15% variance at 5 year intervals.
Live Volume Offered	Quarterly reports - cut and sold.	(Same as above)	Annually	High	High	(Same as above)
Mortality Volume Offered	(Same as above)	(Same as above)	Annually	High	High	(Same as above)
Silvicultural Exams and Prescriptions	MAR - CISC and field investigations.	To evaluate unsuitable lands and compliance with management requirements	Annually & 5 year intervals	High	High	(Same as above)
Reforestation	Acres reported in MAR, CISC and field exams.	To ensure adequate reforestation within 5 years.	Annually	High	High	A 15% variance at 5 year intervals.

1/ MEF-Thousand Board Feet
 2/ TMIS-Timber Management Information System

TABLE 5-1, continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would Initiate Further Action
Regeneration	Acres reported - CISC.	To determine objective attainment.	5 year intervals.	High	High	A 15% variance at 5 year intervals.
Timber Stand Improvement	Acres reported in MAR CISC - field exams.	(Same as above)	Annually	High	High	(Same as above)
Maximum Size Limits	Silvicultural exams.	To determine whether size limits should continue.	5 year intervals.	High	High	Maximum size limits that conflict with Forest Plan objective achievement and desired future condition.
SOIL, WATER AND AIR						
All ground disturbing activities that have the potential to adversely affect soil productivity.	Visual estimate, and transect monitoring ground cover amounts and conditions, fertility levels, and bulk density, before and after treatments. Project work plans (5 to 10% of activities.)	To determine impact on soil productivity and effectiveness of BMP application.	Annually	Mod.	Mod.	Soil loss exceeding tolerance limits and any deviation from applying BMP's.
All ground disturbing activities that have potential to adversely affect water quality and riparian areas.	Field observation and measurements (temperature, sediment, turbidity, dissolved oxygen, vegetation, aquatic insects, etc.) on one project per District.	To determine project impact on water quality, results of BMP 3/ application.	Monthly or annually, determined by project.	Mod.	Mod.	Deviation from water quality standards for designated uses or BMP not achieving desired condition.

3/ Best Management Practices

TABLE 5-1, continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would Initiate Further Action
Soil and Water Resource Improvements	Project reviews and Management Attainment Reports. All treated areas.	To determine if applied techniques were effective in returning sites to a productive condition, and if water quality meets fishable and swinable standards.	Annually	High	High	A 30% project treatment area failure, or water quality not suitable for fishable and swimmable.
Herbicide application where there is a risk of off-site movement.	Surface water sampling below application area or ground water.	To ensure prediction of herbicide movement are correct.	During storm flow events	High	High	Information showing persistent off-site movement.
Water Quality Monitoring at Swimming Areas	EPA approved analysis techniques at all swimming sites.	To ensure that water quality is suitable for swimming.	Weekly during use season.	High	High	Exceeding Forest Service water quality standards. Reference FBM 2542.
Water quality, quantity and timing	Select representative DBRU's 2/ within management areas with practice mix.	Determine Plan's effect on long range water quality, quantity, and timing trend. Determined by specific sampling design, available data and data to be collected.	5 stations annually.	Mod.	Mod.	Any downward trend or lack of upward trend to achieve goals and objectives.

2/ Drainage Basin Response Units

TABLE 5-1, continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would initiate Further Action
Air Quality	Review prescribed fire and smoke management plans. State and federal permits.	To determine activity impact on air quality values, and to assure activities meet State and Federal air quality standards.	Annually by project.	Mod.	Mod.	Air quality standards not being met, and air quality values being impaired.
MINERALS AND GEOLOGY						
Lease terms, permits, and operating plans compliance	Prospecting permits, surface occupancy permits, mineral material permits, permits to drill, operating plans, preference right leases, BLM leases/on-site inspections. Activity reviews.	To ensure adequate surface resource protection. Ensure that BMP's for soil and water protection are applied.	Annually	High	High	Effects which do not meet Forest Management Requirements for soil and water; departure from authorizing documents terms and conditions.
LANDS						
Special Use Permits	Individual permits, land use reports/case reviews, on-site inspections.	To ensure compliance with current laws, regulations and policy; protect resources.	Annually	High	High	Violation of permit requirements; a law, regulation, or policy change.

TABLE 5-1, continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would initiate Further Action
Land Exchange	Land adjustment plan/exchange proposal review.	To ensure that land exchange proposals comply with Land Adjustment Plan and to request approval for deviations.	Annually	High	High	Proposed land adjustments not in compliance with Land Adjustment Plan.
Property Boundary Location	Miles - MAR	To ensure compliance with current laws, regulations and policy.	Annually	High	High	A 15% variance from annual goal (all to standard by 1995).
Property Boundary Maintenance	Miles - MAR	To ensure property lines are maintained to FS standards.	Annually	High	High	A 10% variance from annual goal (7 year interval on St. Francis and 10 year interval on Ozark).
Rights-Of-Way Acquisition	Cases - MAR	To determine objective attainment.	Annually	High	High	If more than 20% of cases require condemnation.
FACILITIES						
Road Reconstruction and Construction	Transportation plans, Miles - MAR	To determine compliance with plan objectives.	Annually	High	High	A 15% variance at 5 year intervals.
Road Maintenance All 5 Levels	Miles by maintenance level - MAR	To determine compliance with plan objectives.	Annually	High	High	A 15% variance at 5 year intervals.

TABLE 5-1, continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would Initiate Further Action
PROTECTION						
Fire Management Planning and Analysis	Fire Management Action Plan, Fire Management Effectiveness Index, Level 1 Fire Analysis.	To provide effective suppression actions to support Plan objectives and to ensure an adequate fire suppression organization.	Annually	High	High	Any significant deviations from Forestwide Fire Action Plan management
Fire Suppression (Fire Control Objectives)	Individual Fire Reports, organization to meet fire frequency, net value change analysis.	Ensure that fire control acre objectives are being met, that suppression strategies are adequate, and that fires are being controlled at lowest cost plus net value change.	Annually	High	High	Any significant deviations from Fire Action Plan objectives.
Insect or Disease Symptoms and Damage	Annual aerial surveys and ground check.	To ensure that insect and disease caused damage remains at an acceptable level.	Annually	Mod.	High	Determination that a pest population is likely to exceed endemic stages.

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TABLE 5-1. continued

Monitoring and Evaluation

Activity, Practice, Effect or Resource to be Monitored	Monitoring Techniques and Data Sources	Monitoring Purpose	Measurement Frequency and Report Time	Precision 1/	Reliability 2/	Variability that would Initiate Further Action
ECONOMICS						
Actual Forest Plan implementation costs comparison to planned cost.	Compare planned costs and program accounting with actual in Management Attainment Reporting System.	To ensure that appropriated funding meets anticipated budget Forest Plan needs.	Annually	High	High	A 20% decrease or increase in planned projects due to funding.
ACHIEVING OBJECTIVES OF FOREST PLAN						
Prescription application to management areas.	<p>Data Sources—</p> <ul style="list-style-type: none"> —Prescriptions —District, Supervisor's Office Records —Work Plans —MAR's <p>Monitoring Techniques—</p> <ul style="list-style-type: none"> —Program Reviews —General Management Reviews —Routine review of individual silvicultural prescriptions. 	To determine if Forest Plan goals, objectives and standards are being achieved.	Annually	Mod.	High	Any significant deviation from the prescriptions or the Forest Plan objectives as judged by the review team.

5-17

AMENDMENTS AND
REVISIONS

Amendments

Based on analysis of objectives, guidelines, and contents, the Forest Supervisor shall determine whether a proposed amendment would result a significant Plan change. If the change from the proposed amendment is significant, the Forest Supervisor shall follow the same procedure required for Plan development and approval. If the change is determined not to be significant in the planning process, the Forest Supervisor may implement the amendment following appropriate public notification, completion of NEPA procedures and Regional Forester approval.

Revisions

This Plan shall ordinarily be revised on a 10-year cycle or at least every 15 years. It also may be revised whenever the Forest Supervisor determines that conditions or demands in the areas covered by the Plan have changed significantly or when changes in RPA policies, goals, or objectives would have a significant effect on forest level programs. In the monitoring and evaluation process, the inter-disciplinary team may recommend a Plan revision at any time. Revisions are not effective until approved according to requirements for Plan development and approval. The Forest Supervisor shall review the conditions on the land covered by the Plan at least every five years to determine whether conditions or public demands have changed significantly.

This Plan will be revised when necessary but no later than October 1, 2000.