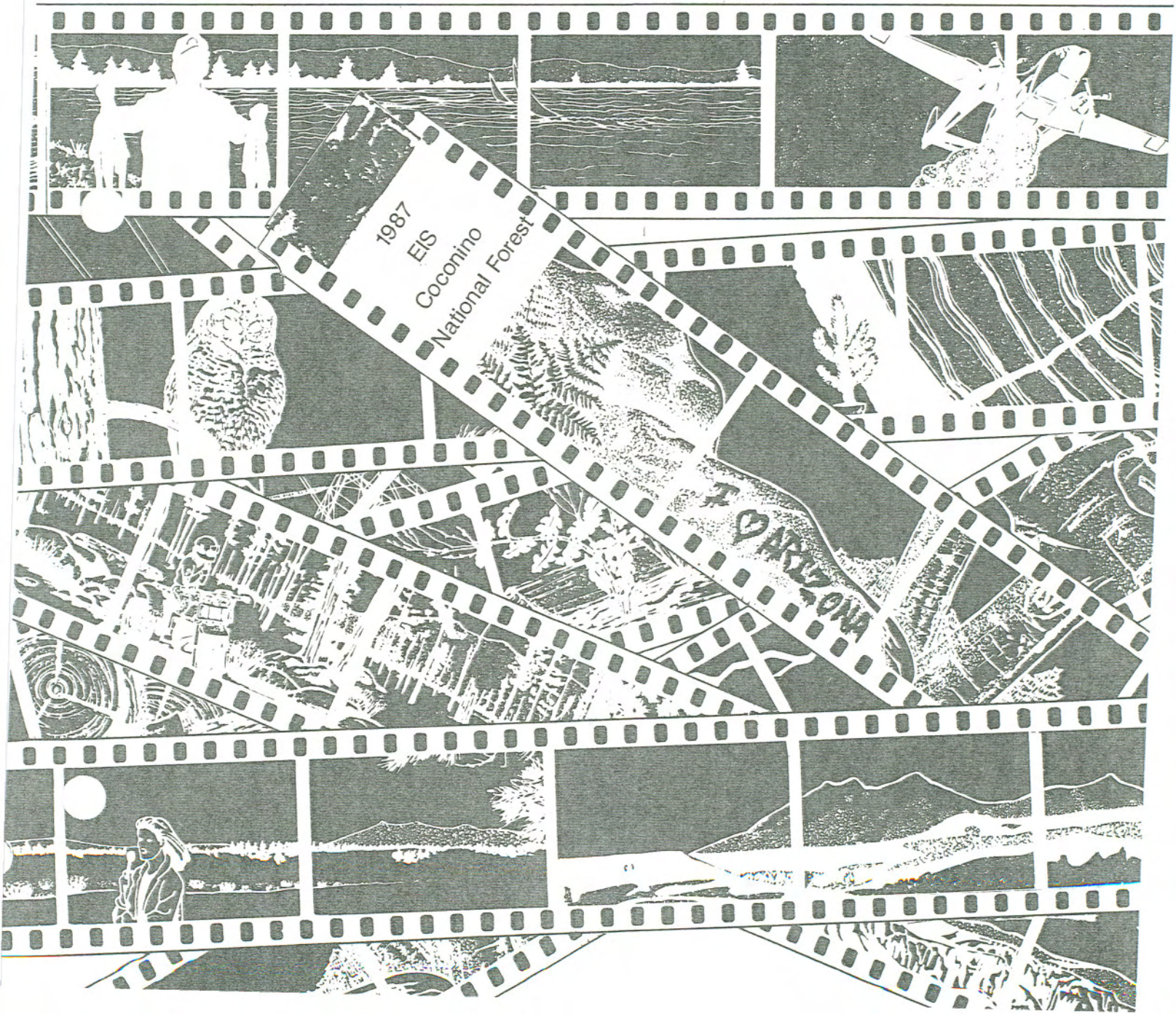
United States
Department of
Agriculture

Forest
Service

Southwestern
Region

Coconino National Forest Plan



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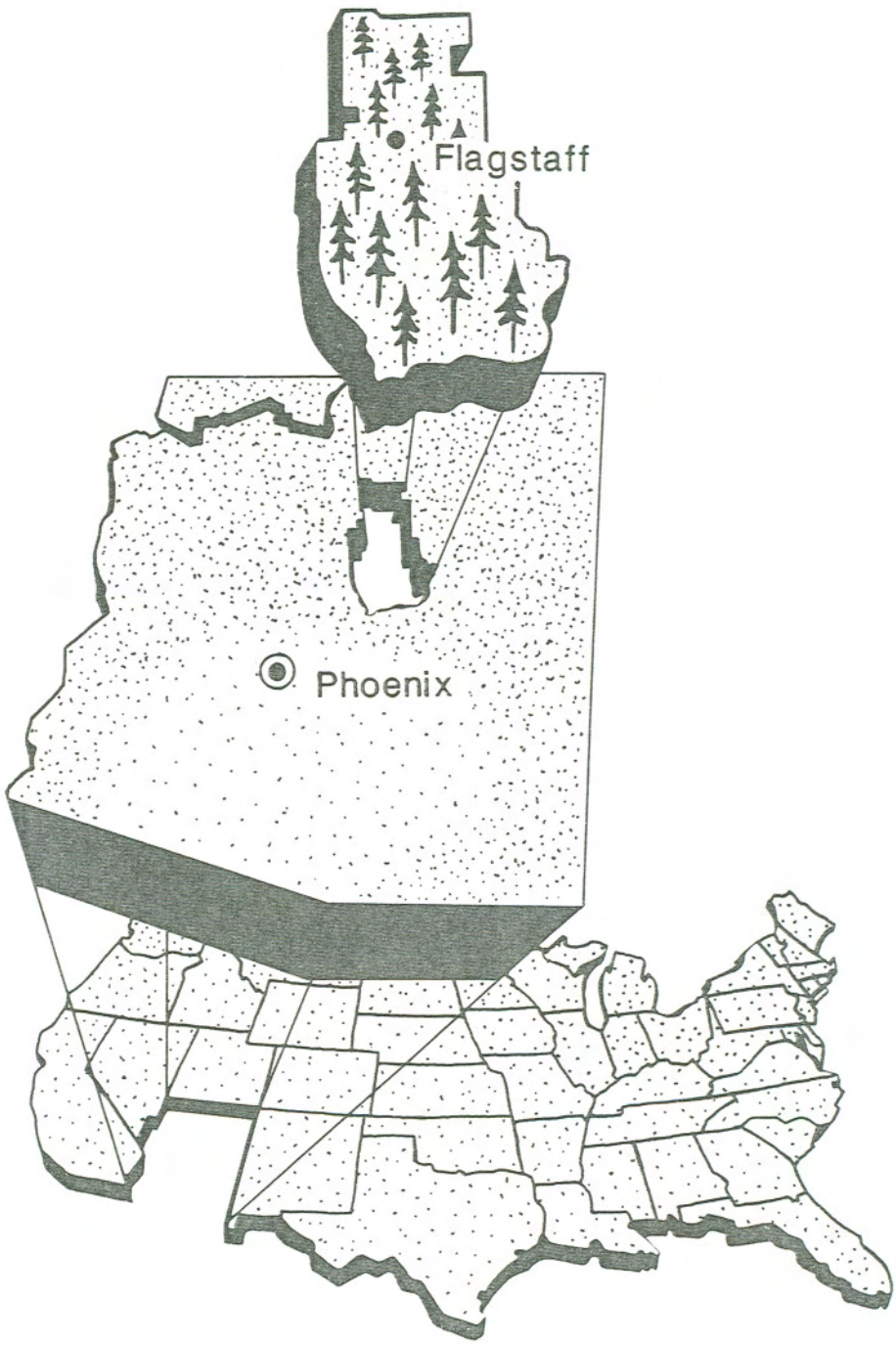

Published August 1987

Coconino National Forest

Land and Resource Management Plan

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PLANNING RECORD

The Environmental Impact Statement and Coconino National Forest Land and Resource Management Plan document the analysis and decisions resulting from the planning process.

The detailed documentation of the analysis, assumptions, and decisions are recorded in an extensive file and library referred to in the EIS and Forest Plan as the planning record.

The planning record contains the data, computer results, references, direction, and decisions that supported and drove the process. The planning record is often cited for further information on various subjects.

Appendix C of the EIS lists the technical reports that summarize, in detail, the phases of the planning process. The technical reports are incorporated by reference for purposes of analysis in the EIS and Forest Plan. The technical reports are available in the planning record.

The planning record is a public record. It is available for review during the hours of 8:00 a.m. to 4:00 p.m., Monday through Friday. Specific documents and general information from the planning record are available by writing:

Coconino National Forest
Land Management Planning
2323 E. Greenlaw Lane
Flagstaff, AZ 86004

Commercial Telephone: (602) 527-7400

FTS Telephone: 765-7400

There may be a charge to cover costs of such things as photo-copying, searching for information, and computer time.

Chapter 1 - Introduction

PURPOSE OF THE PLAN

The Coconino National Forest [Forest], Land and Resource Management Plan [Forest Plan] defines the direction for managing the Forest for the next 10 to 15 years.

The Forest Plan provides for integrated multiple-use and sustained-yield of goods and services from the Forest in a way that maximizes long-term net public benefits in an environmentally sound manner.

Preparation of the Forest Plan is required by the Renewable Resources Planning Act (RPA), as amended by the National Forest Management Act (NFMA).

The planning principles in the NFMA regulations [36 CFR 219.1 (b)] were integrated throughout the process. These principles are:

- Establishing goals and objectives for multiple-use and sustained-yield management of renewable resources without impairment of the productivity of the land;
- Considering the relative values of all renewable resources, including the relationship of nonrenewable resources, such as minerals, to renewable resources;
- Recognizing that the National Forests are ecosystems and their management for goods and services requires an awareness and consideration of the interrelationships among plants, animals, soil, water, air, and other environmental factors within such ecosystems;
- Protecting and, where appropriate, improving the quality of renewable resources;
- Preserving important historic, cultural, and natural aspects of our national heritage;
- Protecting and preserving the inherent right of freedom of American Indians to believe, express, and exercise their traditional religions;
- Providing for the safe use and enjoyment of the forest resources by the public;
- Protecting, through ecologically compatible means, all forest and rangeland resources from depredations by forest and rangeland pests;
- Coordinating with the land and resource planning efforts of other Federal agencies, State and local governments, and Indian tribes;
- Using systematic, interdisciplinary approach to ensure coordination and integration of planning activities for multiple-use management;
- Early and frequent public participation;
- Establishing quantitative and qualitative standards and guidelines for land and resource planning and management;

- Managing National Forest System lands in a manner that is sensitive to economic efficiency; and
- Responding to changing conditions of land and other resources and to changing social and economic demands of the American people.

The Forest Plan either supersedes, replaces, or adopts, in whole or in part, all previous resource or land use management plans prepared for the Forest. Upon approval of the Forest Plan, all subsequent activities affecting these lands, including budget proposals, will be based on the Forest Plan [36 CFR 219.10 (e)]. In addition, all permits, contracts, and other instruments for the use and occupancy of these National Forest System lands must be consistent with the Forest Plan [36 CFR 219.10 (e)].

Land management prescriptions and standards and guidelines are a statement of the Plan's management direction. Projected output, services, and rates of implementation are, however, dependent on the annual budget process. Implementation schedules can be changed to reflect annual budget and amended accordingly after appropriate public notification.

ORGANIZATION OF THE PROPOSED FOREST PLAN DOCUMENTATION

Chapter 2 of the Forest Plan describes the major Issues and how the Forest Plan responds to the Issues. Chapter 3 summarizes the Analysis of the Management Situation (AMS). It depicts the current levels of goods and services produced, and projects supply and expected future use on the Forest. Chapter 4 details the mission, goals, objectives, proposed vicinity, and timing of management practices, and describes management direction, and associated resource management standards and guidelines. A management area map, keyed to the prescriptions in Chapter 4 is included with the EIS and Forest Plan package. Chapter 5 is the monitoring plan. The Glossary defines terms. Appendix A lists activity codes. Appendix B lists management areas and acres. Appendix C lists electronic sites. Appendix D lists total Forest acres by suitability and management area. Appendix E lists Satisfactory/Unsatisfactory Range Acres.

PLANNING AREA DESCRIPTION

The Forest includes 1,821,495 contiguous acres in north central Arizona.

Flagstaff, the largest city in northern Arizona, is surrounded by Forest lands, as is Sedona, the next largest community within the Forest boundary.

Legally, the Forest is located in portions of three Counties in Arizona including Coconino, Yavapai, and Gila County. Administratively, the Forest is divided into seven Ranger Districts including Beaver Creek, headquartered 10 miles southeast of Sedona; Elden, headquartered in Flagstaff; Flagstaff, headquartered in Flagstaff; Long Valley, headquartered 50 miles south of Flagstaff at Happy Jack; Mormon Lake, headquartered in Flagstaff; Sedona, headquartered in Sedona; and Blue Ridge, headquartered at the Blue Ridge administrative site, 45 miles southwest of Winslow.

Dramatic landforms dominate the landscape. The San Francisco Peaks, at 12,633 feet the highest point in Arizona, tower over the flat, heavily timbered Colorado Plateau, home of the largest contiguous stand of ponderosa pine in the world. The Mogollon Rim, a high rocky escarpment, slashes across the southern reaches of the Forest and forcefully separates the cool timber country from the arid, high desert scrub along the Verde River, the Forest's southern boundary. Deep canyons and natural lakes round out the picture of a Forest that spans the major life zones of Arizona.

See the vicinity map preceding the Introduction for the location of the Forest relative to the Nation and the State of Arizona.

Chapter 2 - Issues

OVERVIEW

Significant Issues have been identified for the Forest Plan. The Forest Plan and alternatives to it are designed to respond to the Issues as well as to RPA Program objectives assigned to the Forest in the Southwestern Regional Guide (R-3).

Issues were identified during the scooping process from such sources as the Regional Guide and from comments solicited from the public and from agency personnel. People made their comments known at a series of public meetings and open houses, and in response to an information booklet/response form mailed to interested and affected people.

Comments were analyzed to identify the most significant Issues. Identified Issues were then further analyzed and screened to make a list of the final Issues that have served to drive the planning process.

The significant Issues were developed after careful screening to determine whether each Issue was: specifically relevant to the Forest; Forest-wide in scope; within the Regional Forester's authority to resolve; long-term in duration; within the Forest's physical and fiscal capability to resolve; adequately identified by associated goals and objectives; and significantly intense based on whether the Issue dealt with existing or anticipated conflicts, affected resource management practices, and could show measurable progress toward implementation within the first decade.

Direction from the Secretary of Agriculture prompted another public involvement phase relative to the wilderness Issue and reevaluation of the Forest's roadless areas. During August of 1983, two State-wide and five local public open houses were held to gather input on the roadless area review. A total of 68 responses were received as a result of public involvement activities.

An analysis of the significant Forest Issues resulted in eliminating the wilderness Issue because it was resolved by the Arizona Wilderness Bill of August 28, 1984. The Issue involving soil productivity and stability was also eliminated from further consideration because it was a local issue related to range management in a small area of the Forest below the Mogollon Rim.

ISSUES

The Forest Plan responds to significant Issues in specific ways. Chapter 2 briefly discusses each significant Issue and describes how the Forest Plan responds to it by 2030. For a more thorough discussion of the significant Issues, see the Environmental Impact Statement that accompanies this Forest Plan or the technical report titled "Public Involvement and Identification of Issues, Concerns, and Opportunities", available for review in the planning record. The issues were generated and analyzed from 1981 through 1983. In this section all comparisons to current issues refer to this time period.

The following are the significant Issues:

- Firewood Availability
- Timber Harvest Levels
- Availability of Recreation Options
- Off-Road Vehicle Use
- Wildlife Habitat
- Riparian Habitat
- Geothermal Development
- Management of the Transportation System
- Allocation of Public Lands
- Law Enforcement
- Land Ownership Adjustment

Firewood

The Forest produces abundant supplies of firewood, mostly ponderosa pine. User demand for oak, aspen, and alligator juniper, the preferred firewoods, exceeds supply.

Access to firewood, in some cases, is poor or nonexistent. Burning slash to reduce hazardous fuels consumes usable firewood. Timber sale slash is 40 percent of the available firewood.

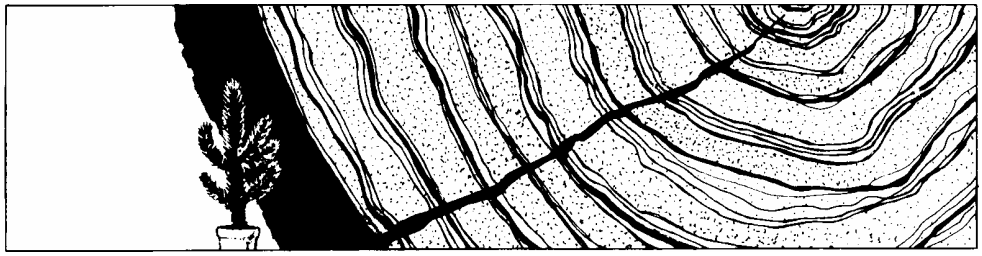
Firewood cutters help "fire proof" the Forest and reduce the cost of fuel treatment by removing fuels that could contribute to large fires. Firewood cutters also contribute to road damage, soil erosion, and vegetative damage by driving to firewood supplies during periods when soils and native surface roads are wet and subject to rutting damage. Some firewood cutters illegally destroy wildlife snags and take or damage live trees, especially oak, aspen, and alligator juniper. Burning wood saves substantial quantities of fossil fuel, but also impairs air quality in some communities during portions of the cold months.

Total Average Annual Firewood Harvest in Thousands of Cords[1]

Firewood Type	Decade 1	Decade 3	Decade 5
Green firewood - piñon/juniper, aspen, &oak	14.8	16.7	18.5
Dead & Down Material	18.3	22.0	7.3
Timber sale slash	25.2	33.1	35.3
Total Firewood	58.3	71.8	61.1
Total Demand	58.4	77.5	85.1

By the fifth decade, the projected supply, including accessible timber sale slash, meets only 72 percent of the projected demand.

Timber Harvest Levels

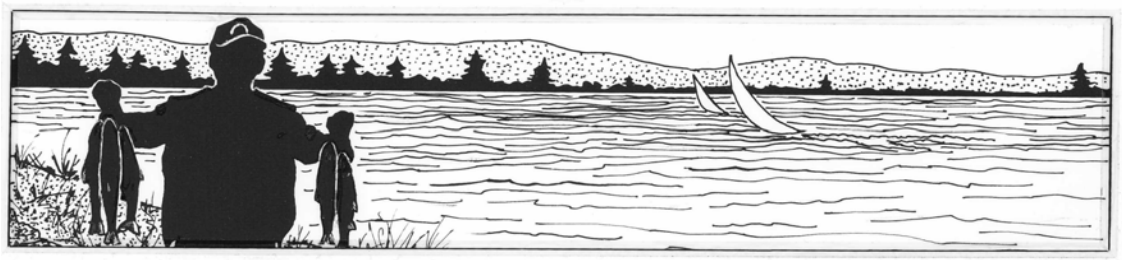


Conflicts between timber harvest and other resource uses are increasing. Conflicts include allocating land to other resource uses and modifying silvicultural practices to accommodate other uses.

Tentatively suitable timber lands make up 640,032 acres or 35 percent of the Forest's land base. The tentatively suitable timber lands are also important for wildlife habitat. As old-growth ponderosa pine is harvested, habitat for a number of wildlife species is reduced. Allocating highly productive timber lands to uses other than timber production reduces long-range timber outputs. Failure to allocate some of these lands to prescriptions that maintain or enhance recreation, wildlife habitat, cultural resource interpretation, and many other uses adversely impacts overall Forest management. Compensating for these reductions are increased growth rates due to the benefits from a major backlog thinning program and from reforesting much of the backlog over the last several years. The projected annual Allowable Sale Quantity (ASQ) is near current harvest level, at 99 MMBF in Decade 1 and 112 MMBF in Decade 5. Demand for sawtimber from the local timber industry is 89 MMBF for sawtimber and virtually zero for pulpwood for the next ten years. This demand figure is based on an analysis of historic purchases, present and projected mill capacities, and industry projections.

[1] Includes 8,000 cords estimated as stolen at the start of the first decade.

The Availability of Recreation Options



Demands for developed and dispersed recreation opportunities are increasing. The Coconino is within a 3-6 hour drive of the majority of the population of Arizona and within a 10-12 hour drive of half the population of California. The Forest is currently managing most developed sites for less than the potential season of use. Dispersed use is often concentrated in favored areas, causing adverse environmental impacts.

Users concentrate in favored areas because they find that other types of use degrade their recreation experience. Funding is inadequate to monitor and enforce rules that are designed to minimize conflicts such as those that occur between cross-country skiers and snowmobilers at Mormon Lake and at Hart Prairie each winter.

Soil erosion and compaction or water pollution are problems in small, popular areas such as some of the mountain meadows and Slide Rock in Oak Creek. Vegetation suffers in high concentration areas, as does wildlife.

Quantifiable Description			**Nonquantifiable Description**
	% Demand Satisfied		
RVD's		**Dev. Rec.**	**Dis. Rec.**
Decade 1	97	100	Developed recreation use increased as indicated in the Statewide Comprehensive Outdoor Recreation Plan. Site development is emphasized above the 4,000 foot elevation in general.
Decade 5	92	100	Management of developed sites is at standard service level and is improved via increased law enforcement, facility maintenance, and user protection. Competition with State and private sector is minimized by setting comparative fees and not developing in close proximity to other sites. Dispersed recreation opportunities are provided at standard service level. This provides for more management which reduces user conflicts and local environmental impacts.

Off-Road Driving

Off-road driving (often referred to as ORV use) is an important recreational experience for some publics and is increasing, especially two- and three-wheeled vehicles. Such use damages the environment in some areas or results in conflicts with other users. The Forest is open to off-road driving except where designated closed.

Off-road driving permits people access to resources like firewood. Some types of use have a severe impact on soils, vegetation, wildlife, and some other users.

Quantifiable Description – Year 2030 Acres in Thousands		**Nonquantifiable Description**
Open M[2] (acres)	**Closed or seasonally restricted (M Acres)**	
1,491	**331**[3]	Off-road driving is provided commensurate with resource management objectives and budget levels.

Wildlife Habitat

The demand for wildlife benefits, both consumptive and nonconsumptive, continues to increase. In most cases, current Forest management continues to maintain adequate habitat.

Continuing current timber management practices will reduce the quantity and distribution of habitat for species dependent on old-growth.

[2] M = thousand
[3] Includes 150 M acres of wilderness

The Forest Plan provides a moderate to high amount and quality of habitat components within the suitable timber lands. Old-growth is maintained above minimum levels. Populations of indicator species are maintained at levels exceeding minimum viable populations, including wildlife dependent on old-growth habitat.

Prescribed natural fire and/or planned ignitions help restore natural habitat diversity in wilderness. Inventories and plans for future habitats enable an adequate integration of species habitat needs with other resource uses, and enable establishing priorities for maintaining and improving habitats. A moderate overall improvement in existing habitat carrying capacity occurs by the end of the fifth decade. Current level wildlife and Fish User Days (WFUD's) for Decade 1 is 283 thousand and the fifth decade level is 268 thousand, while the Forest Plan starts at 306 thousand and reaches 353 thousand in the fifth decade. Changes from first decade use, under all alternatives, reflect only the changes in consumptive wildlife recreation use as a result of habitat capability changes. They do not include increased nonconsumptive wildlife use that will occur due to increased recreation demand, nor do they include increases in other use, e.g., fishing, which could occur due to changes in management strategy by the AGFD.

Habitat Component – Acres

	Decade 1	**Decade 5**
Old-Growth[4]	89,000[5]	89,000
Thermal Cover	343,791	235,272
Hiding Cover	327,514	156,719

The decrease in the amount of cover by the fifth decade results from an increase in the amount of late succession habitat made up of mature and old-growth age classes. This reduces the amount of early succession habitat that is used by big game for cover. However, there will still be adequate cover made up of 30 percent of the coniferous forest type managed for hiding and thermal cover to meet the goals of the Arizona Wildlife and Fisheries Comprehensive Plan.

[4] Includes acres managed for old-growth on land classified as tentatively suitable for timber management (suitable and some not appropriate lands.

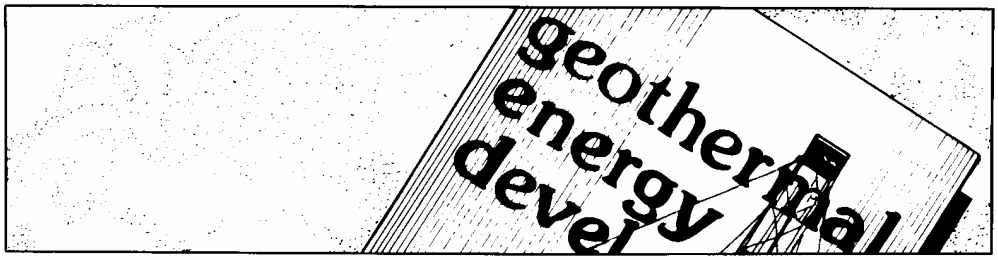
[5] The number of old-growth acres displayed does not include approximately 18,000 acres from the nonavailable timber lands. The number represents how many acres are managed for old-growth, half of which will be in an old-growth condition at any point in time.

Riparian Habitat

Riparian areas and wetlands are key wildlife habitats. More wildlife species depend entirely on or spend more time in this habitat than in any other. Riparian areas are important for recreation, fisheries production, maintaining water quality, and grazing. Riparian areas above the Mogollon Rim are the primary issue. These are predominantly willow communities.

There is substantial riparian recovery and increased management of this unique and valuable habitat. Budget levels encourage not only a high level of coordination with other uses such as recreation and range, but also allow rehabilitation and reestablishment projects to accelerate recovery. Weather patterns conducive to natural reestablishment and recovery cannot be predicted but are assumed to occur at times within the 50-year planning period. Ninety percent of the riparian recovery is expected by 2030. The remaining 10 percent will be significantly improved, but will not have all of the characteristics of a fully recovered riparian area, such as 3 age classes of woody vegetation. The goals and objectives for elk populations and for livestock grazing affect achievement of the full recovery.

Geothermal Development



There are geothermal lease applications on 94,703 acres of the Forest.

Future geothermal site development could cause conflicts with other resources and uses.

Geothermal leases are issued with standard stipulations. Restrictions are utilized in areas with special designations such as the Inner Basin, developed recreation sites, and areas with high cultural, visual, or recreational sensitivity.

Management of the Transportation System

The existing Forest road and trail systems are not fully capable of meeting user demands. Regulations do not provide for developing and maintaining roads for non-Forest users.

The period of use on the transportation system ranges from fair weather only to all weather.

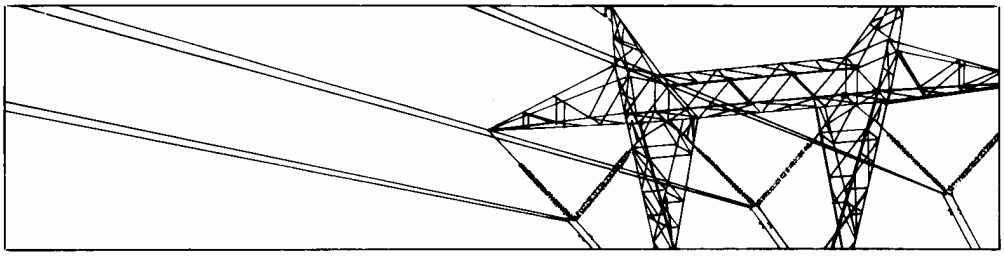
Mid-Decade Annual Road Operation and Maintenance Program - miles

	Decade 1	**Decade 2**
Levels 1-2	100	200
Levels 3-5	1,000	1,400
Not Requiring Annual Maintenance	2,625	2,375[6]
Not Maintained to Standard	2,425	1,775

Road maintenance are reconstructed and maintained to the latest as-built standard that will perpetuate funding is slightly above current in the first decade, but will not be adequate to stop the disinvestment of the road system. Disinvestment will be reduced as road maintenance funding is increased over the planning period. Roads not needed for effective use and administration of Forest resources are obliterated at a rate of 40 miles per year. Intermittent roads are closed and the public is informed. Four hundred and ninety five miles of roads the roads without the need for capital investment funds. The remainder of the road system will be reconstructed on a rotational cycle based on a needs and benefit/cost analysis. Others are maintained for user safety and resource protection. Description of maintenance funding is in Chapter 4 of the EIS, and a definition is in the glossary.

[6] Maintained to Standard, Levels 1 and 2, but on a 2-5 year schedule, rather than annually

Use of the Public Lands



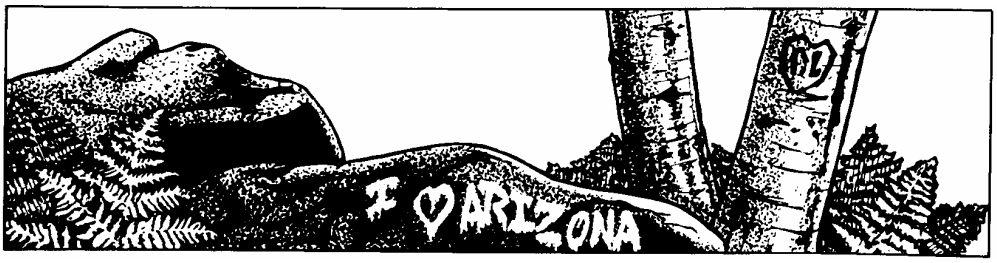
Rapid urban expansion has led to significant increases in requests to use public lands for both public and private, exclusive uses. At issue is whether these uses are appropriate and, if so, whether the public should be reimbursed for the use of public lands. The Forest policy is to favor the greatest Public Net Benefit [PNB] over time in each decision affecting land allocation.

Establishing and implementing the policy results in fewer long-term, exclusive commitments, such as sewage treatment plants and landfills. Making maximum use of existing utility corridors reduces the impact on outputs of other goods and services and provides firm planning direction for meeting expanding energy needs.

Existing direction for developing new transmission and pipeline corridors is used. Corridors are restricted to planned routes. New electronic facilities are limited to existing designated sites.

Incidents of trespass are decreasing.

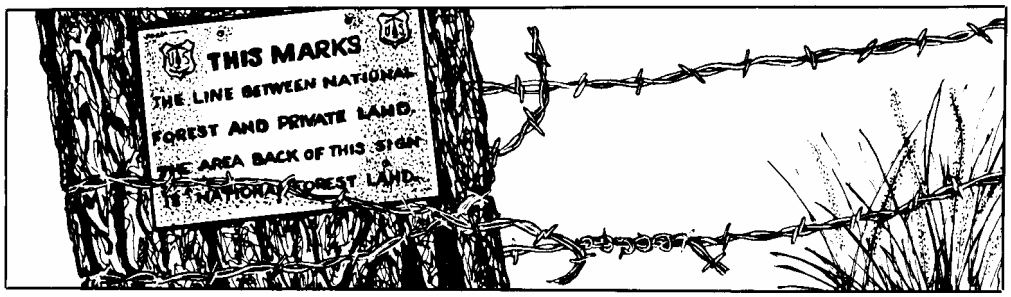
Law Enforcement



The public is highly concerned that violations of laws and regulations cause damage or loss of resources, property, and facilities. Violations degrade the public's enjoyment of the Forest, generally lessening overall management efficiency.

An overview of proposed direction to reduce violations of laws and regulations is presented in Chapter 4 under Forest-wide Standards and Guidelines. Proposed law enforcement management practices are described for each resource and support activity by management area as appropriate. There is increased emphasis on law enforcement, especially for cultural resources, off-road driving, firewood theft, and vandalism. The combination of increased law enforcement and public education curtail violations of laws and regulations, even with increased forest use.

Landownership Adjustment



Forest management efficiency, community growth demands for services from local governments, and the needs and desires of private landowners are highly affected by landownership adjustment. As populations increase, the incidence of conflicts over landownership increases. At issue are the problems for Forest managers and other landowners resulting from decisions about landownership.

Base-in-exchange lands total 21,133 acres at the beginning of the first decade and provide for expansion of communities as the need arises.

Adjusting landownership and consolidating properties results in less total boundary between National Forest and others. This reduces potential for occupancy trespass.

OPPORTUNITIES

Two significant opportunities to enhance resource management were identified. This section explains what they are and how they are integrated into the Forest Plan.

Public Affairs

The public and Forest Service managers agree that there is an opportunity to enhance resource programs and enlist public understanding and support through increased public affairs programs. Public affairs programs would ease law enforcement problems, defuse the Issue of landownership, help resolve the firewood Issue, enhance recreation opportunities, and increase public awareness of the missions and objectives of the agency.

The Forest is committed to maintaining a responsive and sensitive relationship with Native American people. This relationship includes public affairs program to ensure Forest Service recognition of Native American needs and viewpoints.

Public affairs will strengthen Forest management by improving the dialog between administrators and the public they serve.

An overview of proposed direction to increase the public affairs program is presented in Chapter 4 under Forest-wide Standards and Guidelines. The public affairs program is described by management area as appropriate.

The Forest maintains a full-time Public Affairs Program to appropriately involve the public in Forest management.

An analysis of how well the Forest is meeting public affairs objectives overall is performed annually and at the beginning of each major project or program.

Line Officers and key staff actively address National, State, and local issues to keep them in local perspective. Examples are recent interest in below-cost-timber sales and charges of a road building conspiracy to deny future wilderness consideration to roadless areas.

A Forest Public Affairs Plan and Citizen Participation Plan are prepared or updated annually. The Public Affairs Plan tiers to the Forest Plan for general direction.

Volunteers

An opportunity exists to enhance resource use and development through increased participation by volunteers.

Support for the Forest's volunteer program is provided by individual resource projects and programs through purchase of materials and supplies, and providing transportation and lodging.

Chapter 3 - Summary Of The Analysis Of The Management Situation

OVERVIEW

An Analysis of the Management Situation (AMS) was prepared and documented in September 1982 as a means of determining the productive capacity of the Forest to supply various goods and services. Revised FORPLAN analysis is reflected in Appendx B of the EIS. Copies of the AMS are filed at Ranger District offices, the Forest Supervisor's Office, the Regional Office, and are available in the planning record. The AMS is incorporated by reference for purposes of analysis in the EIS and Forest Plan.

Table 1 summarizes the major conclusions in terms of key outputs from the AMS and Appendix B of the EIS. The table depicts goods and services produced by the Forest Plan and projects supply and demand.

Supply and demand for various goods and services have been analyzed to identify necessary improvements, resolve the Issues, and prevent future conflict. The goal of the Forest Plan is to identify the level and type of Forest uses that would help meet demand while enhancing or maintaining resources in a cost effective, integrated manner.

Table 1 - Comparison of the Key Outputs with Potential Supply and Projected Future Use

Resource Output	Average Annual Unit of Measure	Forest Plan Decade 1	Forest Plan Decade 5	Potential Supply Decade 1	Potential Supply Decade 5	Demand Decade 1	Demand Decade 5
Sawtimber Sales	MMBF	89	97	1347	1237	89	97
Products (Pulpwood)	MMBF	10	5	597	100[7]	0-5	15
Firewood Sold and Free Use	MMBF	29.2	25.8	48	36	29.2	42.6
Grazing Capacity	MAUM	170	185	181	236	181	236
Permitted Livestock Use	MAUM	170	185	181	236	181	236

[7] The outputs for sawtimber and products are not additive for potential supply as prescriptions which maximize sawtimber produce less products and vice versa.

Table 1 - Comparison of the Key Outputs with Potential Supply and Projected Future Use (continued)

Resource Output	Average Annual Unit of Measure	Forest Plan Decade 1	Forest Plan Decade 5	Potential Supply Decade 1	Potential Supply Decade 5	Demand Decade 1	Demand Decade 5
Wilderness Recreation	MRVD	46	101	46	101	46	101
Developed Recreation	MRVD	973	1,749	1,006	1,892	1,006	1,892
Dispersed Recreation	MRVD	1,388	2,702	1,392	2,739	1,392	2,739
Wildlife Recreation	MWFUD	306	353	286	329	295	538

The Forest has adequate supply potential to meet sawtimber demand through the fifth decade. The Forest Plan projects harvests increasing to the demand level by that time. Demand for timber products will exceed supply potential by the fifth decade. Firewood demand will exceed supply potential by the fifth decade but is adequate for the first decade.

The projected plan level of grazing is less than projected demand because of priorities for constrained funds and potential conflicts with wildlife habitat capacity at maximum levels. There are development opportunities to increase the amount of grazing by putting increased funding into range improvements and by changing the mix of winter and summer grazing.

Supply, demand, and planned levels of wilderness recreation are in balance in all decades.

There is adequate supply potential to meet demand for developed recreation, but the planned level is slightly less than demand because of priorities for constrained funds. The development opportunity is virtually unlimited because of the gentle topography. However, there is also an opportunity for this portion of demand to be met by the private sector and/or State and local government because of available suitable land in these ownerships.

PRIOR ALLOCATIONS

The planning process included evaluating existing allocations of land and evaluating previous plans to determine whether or not they still apply. The following are the previous plans, specific laws, regulations, or cooperative agreements, reviewed and shown to be appropriate. These items were retained in all alternatives with no further analysis.

The Sedona-Oak Creek Plan is a revision of the District Multiple-Use Plan and is an interagency plan developed by the Forest Service, the State of Arizona, and Coconino and Yavapai Counties. The Forest Plan adopts the Sedona-Oak Creek Plan in its entirety except that the land adjustment portion of the Sedona-Oak Creek Plan must conform to criteria in the Forest Plan. The Sedona-Oak Creek Plan is incorporated by reference for purposes of analysis in the EIS and Forest Plan.

- The Forest Plan adopts the Environmental Impact Statement on the Arizona Snow Bowl Ski Area Proposal. The EIS on the Arizona Snow Bowl Ski Area Proposal is incorporated by reference for the purposes of analysis in the EIS and Forest Plan. The Arizona Snow Bowl is now known as the Fairfield Snow Bowl.

- The Forest Plan supercedes the San Francisco Peaks, Mogollon Rim, and Woods Unit Plans. Some of the management direction from these documents has been incorporated into the Standards and Guidelines of the Forest Plan.

- The San Francisco Peaks Alpine Tundra Management Plan for *Senecio franciscanus* was approved in December 1984, and the consultation response from the USDI Fish and Wildlife Service was signed April 19, 1984. These documents provide the proposal and agreement for management of the tundra and the Senecio habitat.

- Designated in the San Francisco Peaks Land Use Plan the 350-acre Elden Environmental Study Area [ESA] is reserved for use by the public school system, the public, and others for educational and recreational purposes.

- The three electronic site management plans for Elden Mountain, Schnebly Hill, and Mormon Mountain are adopted by the Forest Plan and incorporated by reference for the purpose of analysis in the EIS and Forest Plan.

- Congress established the 47,762-acre Sycamore Canyon Wilderness on March 6, 1972. The Wilderness is shared by three Forests. The Coconino manages 22,864 acres, and the Kaibab and Prescott manage the remainder.

- Congress established eight Wildernesses on August 28, 1984. They include the 18,200-acre Kachina Peaks, the 10,140-acre Strawberry Crater, the 43,950-acre Red Rock-Secret Mountain, the 18,150-acre Munds Mountain, the 13,600-acre West Clear Creek, the 6,700-acre Wet Beaver Creek, the 11,550-acre Fossil Springs, and the 2,200-Coconino acres of the Kendrick Mountain Wilderness. Congress added 2,360 acres on the Coconino to the Mazatzal Wilderness, managed by the Tonto National Forest. Congress also added 2,330 acres to the Sycamore Canyon Wilderness on the Coconino and 5,850 acres on the Prescott National Forest, bringing the total for the Sycamore Canyon Wilderness to 55,962 acres.

- The Verde Wild and Scenic River was established on August 28, 1984. A 22-mile section from Beasley Flat to the junction of Fossil Creek is shared by the Coconino, Prescott, and Tonto National Forests.

- The Oak Creek Scenic Area was withdrawn from mineral entry by P.L. 70, 81st Congress, Senate Bill 812 5/9/1949 and amended by P.L. 39, 84th Congress, H.R. 2679, 5/19/1955, May 24, 1949. Further withdrawals were made in Public Law 30 on May 19, 1955. The area extends from the top of Oak Creek Canyon, rim to rim, to just south of Sedona.

- There are two designated National Recreation Trails: Wilson Mountain and General George Crook. The General George Crook is designated a National Historic Study Trail (1983) and is evaluated for historic trail status in Appendix D of the EIS and recommended as an historic trail in the Forest Plan.

- Walnut Canyon National Monument entrance road will be managed with a 1000 foot right-of-way and toward the preservation and maintenance of the cultural and natural resources of the area as per an agreement between the Monument and the Forest.

- There are seven properties currently listed on the National Register of Historic Places.

- The 565-acre Casner Canyon Research Natural Area [RNA] is located in Oak Creek Canyon.

- The 1,223-acre Red Mountain Proposed Geological Area is on the northwestern border. By approval of the Plan it is formally designated as a Geological Area.

- A cooperative agreement with the National Park Service for a Scenic Easement adjacent to Montezuma's Castle and Well on the Beaver Creek Ranger District.

Chapter 4 - Management Direction

OVERVIEW

Chapter 4 contains the management direction for the Coconino National Forest [Forest]. It begins with the overall Forest-wide mission statement, followed by the goals for management, and then by specific program component goals. The objectives for the program components are shown in the next portion of the text in the form of tables with the specific numerical objectives from the analysis. The main portion of Chapter 4 describes the management prescriptions that contain the Standards and Guidelines for the Forest. The Standards and Guidelines apply until the next revision or update of the Forest Plan in 10 to 15 years. Forest Plan amendments are ongoing.

Mission

A mission is a guiding principle toward which activities focus and contribute. Mission statements are very general. They describe the general direction of the organization and are broad, comprehensive statements. They contain statements about why the organization exists and what it hopes to accomplish, and are used to validate organizational objectives.

The mission of the Forest is to manage National Forest lands and resources using the best systems available to meet the needs and desires of present and future generations, while protecting and enhancing the environment and effectively and efficiently administering Forest programs. Conflicts over allocating resources are inevitable and will increase. The management challenge is to be responsive, equitable, efficient, and understanding in making resource management decisions.

Goals

A goal is defined as "a concise statement that describes a desired condition to be achieved sometime in the future ... it has no specific date by which it is to be completed." [36 CFR 219.3].

The Forest is attempting to initiate a management situation that can respond to local and national demands for wood products, livestock production, water yield, minerals and building materials, and a wide mix of recreation opportunities, including hunting and fishing, that range from the primitive to the urban. The goal is to produce these outputs and opportunities on a sustained basis while maintaining air, soil, water, and biotic resources at or above minimum applicable standards. Levels of outputs and uses are adjusted to be within long-term supply potentials, and to ensure the harmonious and coordinated management of all resources, each with the other, without impairing the productivity of the land. Nonrenewable resources are adequately protected to ensure their future availability.

Goals have been identified for each resource element.

Outdoor Recreation

Manage the recreation resource to increase opportunities for a wide variety of developed and dispersed experiences.

Maintain and enhance visual resource values by including visual quality objectives in resource planning and management activities.

Provide visitor information services (VIS) to interpret the resources, uses, and management of the Forest.

Maintain a variety of Forest trails that include foot, horse, bicycle, and motorized trails, and challenge and adventure opportunities, as well as opportunities for the handicapped.

Continue to integrate the Recreation Opportunity Spectrum (ROS) system into the Forest planning process to quantify recreation opportunities changes, guide management, and coordinate recreation with other resources.

Manage off-road driving to provide opportunities while protecting resources and minimizing conflicts with other users.

Inventory, evaluate, nominate, protect, study, interpret, and enhance cultural resources in accordance with the management prescriptions.

Preserve and protect non-renewable cave resources so their scientific and aesthetic value does not diminish. Conserve wildlife habitat provided by caves. Prevent contamination of important water supplies which drain into, issue from or are contained within caves. Encourage partnerships with caving organizations, scientists and outdoor recreationists. Manage caves and cave resources to provide a range of recreational opportunities. Promote cave conservation through interpretation and education.

Wilderness

Provide a wilderness management program that achieves high quality wilderness values while providing for quality wilderness recreation experiences. Allow wildfire to play a more natural role. Protect the current status of air quality related values (AQRV's) in the Sycamore Canyon Wilderness Class I Airshed. Treat other wildernesses in the same manner as Class I Airsheds.

Initiate the Wilderness Opportunity Spectrum (WOS) system in Forest wildernesses. Develop wilderness management direction that establishes Limits of Acceptable Change (LAC).

Wildlife and Fish

Manage habitat to maintain viable populations of wildlife and fish species and improve habitat for selected species.

Cooperate with the Arizona Game and Fish Department to at least achieve management goals and objectives specified in the Arizona Wildlife and Fisheries Comprehensive Plans and strategic plans, and on proposals for reintroduction of extirpated species into suitable habitat. No unapproved species are introduced. Support the Arizona Game and Fish Department in meeting its objectives for the state

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Improve habitat for listed threatened, endangered, or sensitive species of plants and animals and other species as they become threatened or endangered. Work toward recovery and delisting **threatened and endangered** species.

Identify and protect areas that contain threatened, endangered, and sensitive species of plants and animals.

Increase opportunities for wildlife and fish oriented recreation activities.

Riparian

Accomplish eighty percent of the riparian recovery by 2030. The remaining 20 percent will be significantly improved, but will not have all of the characteristics of a fully recovered riparian area, such as 3 age classes of woody vegetation.

Cooperate with Arizona Game and Fish Department to achieve management goals and objectives in the Arizona Cold Water Fisheries Strategic Plan.

Range

Emphasize high quality range forage and improvements. Manage grazing generally at the D intensity level.

Cooperate with private range owners and other agencies to develop coordinated range management systems of livestock grazing.

Noxious and Invasive Weeds

Prevent any new noxious or invasive weed species from becoming established, contain or control the spread of known weed species, and eradicate species that are the most invasive and pose the greatest threat to the biological diversity and watershed condition.

Timber

Manage the timber resource to provide a sustained-yield of forest products through integrated stand management. On forested lands identified as suitable for commercial timber production, design timber management activities to integrate considerations for economics, water quality, soils, wildlife habitat, recreation opportunities, visual quality, and other values. Develop and implement a sustained-yield program for firewood and other miscellaneous forest products including posts, poles, Christmas trees, and wildings. Emphasize uneven-aged management for timber cutting areas.

Manage resources to prevent a build-up of insects and diseases to prevent or reduce serious, long lasting hazards through integrated pest management (IPM).

Soil, Water, and Air Quality

Maintain or, where needed, enhance soil productivity and watershed condition. Put all areas in a satisfactory watershed condition by 2020. Maintain a high

quality sustained water yield for Forest users and others. Identify and protect wetlands and floodplains. Consider air quality during prescribed fires especially Class I areas over wildernesses.

Minerals

Support sound energy and minerals exploration and development. Administer the mineral laws and regulations to minimize adverse surface resource impacts.

Lands

Acquire lands that are needed for landownership consolidation and improved management efficiency through land exchange, purchase, or donation.

Acquire the road and trail rights-of-way needed to administer the Forest and produce resource outputs.

Resolve unauthorized occupancy and trespass.

Administer the Small Tracts Act to best serve the public and benefit the resources.

Manage summer home tracts and organization camps for the public benefit.

Administer special uses to best meet public needs.

Minimize the number of electronic sites and utility corridors consistent with appropriate public services that can only be met on Forest lands.

Transportation and Administrative Facilities

Provide and manage a serviceable road transportation system that meets needs for public access, land management, resource protection, and user safety. Provisions are made for construction/reconstruction, maintenance, seasonal and special closures, and obliterating unnecessary roads.

Provide administrative facilities to meet resource and activity needs and that meet Federal and State pollution abatement, and handicap access standards where applicable.

Implement a long-range building betterment program and, when needed, plan new construction.

Develop a long-range water and sewage system betterment program.

Protection

Use fire as a resource management tool where it can effectively accomplish resource management objectives. Use fire prevention and control to protect life, property, and resources.

Law Enforcement

Cooperate with State and local law enforcement agencies and provide Forest Level IV officers to properly protect forest resources, employees, visitors, and property.

Research Natural Areas, (RNA's), Botanical Areas, Geological Areas

Manage RNA's for scientific research or baseline studies. Protect potential RNA's pending decision by the Chief.

Manage specially designated areas to protect their special qualities and to provide interpretation and education.

Elden Environmental Study Area (ESA)

Provide an area for environmental educational opportunities for the public school system, youth organizations, and the general public by maintaining the ecosystem and developing interpretive facilities.

Public Affairs

Provide and promote public participation in and information about Forest management to both internal and external publics. Appropriately involve the public in the decision making process. Seek advice and counsel from people who are affected by Forest management.

Human Resources

Manage human resource programs to provide employment, employee well-being, and economic opportunities to communities while meeting natural resource goals.

Land Management Planning

Provide coordination and ensure interdisciplinary input for implementing, monitoring, and updating the Forest Plan.

General Administration

Provide a line and staff organization and administrative support needed to ensure responsive and efficient public land management.

Objectives

An objective is defined as "a concise, time-specific statement of measurable, planned results that responds to preestablished goals" [36 CFR 219.3]. Forest objectives are quantitative; they can be measured. They are completed in a given time and with a given budget level. The objectives are needed to meet mission and goal statements and are consistent with the missions and goals.

Objectives are the annual activities implemented to accomplish the goals and to help address the Issues.

Regional Guide/Forest Plan

Forest planning occurs within the framework of both national and regional planning. Through the national RPA Program, the Regional Guide establishes management Standards and Guidelines, attempts to resolve regionally significant Issues, and assigns outputs and activities (RPA targets) to the Forests in the Region.

Outputs & Range of Implementation

The average annual output levels are shown in **Appendix H**. These outputs can be expected to be produced given the assumptions used in the analysis (see Appendix B of the EIS). However, there are forces that can affect the production of outputs such as weather, budget appropriations from Congress, local economies, and political decisions.

The Forest Plan is used as the basis for developing budget proposals. These proposals are developed approximately 20 months prior to the start of the subject fiscal year. This information is used by the Regional Forester and Chief in responding to various budget level alternatives. As the budget proposals move through the Administration (Department of Agriculture and OMB) and Congressional actions, some adjustments are likely. These adjustments are

based on many considerations such as National program priorities, Federal budgets, and National economic priorities.

Specific budget proposals are likely to change when the annual allocation of funding is received at the Forest level. However, the Forest Plan will be used to establish priorities at whatever budget level is received for the given fiscal year. It is the intent of the Forest and the Region to adhere to the Forest Plan Standards and Guidelines and to accomplish the balance of resource outputs over the first ten year period of the Plan. Accomplishment of the outputs may be rescheduled within the period depending on available funding and/or other factors.

The constrained budget used for preparing the Forest Plan schedule of outputs and services does not include outside sources of funding, such as donations, contributions, reimbursements, and user fees collected by state agencies and used for National Forest resource improvement (Sikes Act Habitat Improvement). It does include appropriated funds plus deposits which reduce returns to the Treasury such as K-V and BD.

Standards and Guidelines to achieve the objectives are found in the Management Prescriptions section. Objectives for the Forest are shown in **Appendix H** Tables 2 through 12.

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MANAGEMENT PRESCRIPTIONS

The mission, goals, and objectives for the Forest are realized by applying groups of management activities to specific units of land. Groups of management activities are called "Prescriptions" and the land units are called "Management Areas." This portion of the Forest Plan describes which prescriptions are applied to which management areas.

Prescriptions are management practices selected and scheduled to apply to a specific area to attain multiple-use and other goals and objectives [36 CFR 219.3(u)]. A management area is a unit of land where a given prescription is to be applied. These areas are outlined on the Management Area Map accompanying this Forest Plan.

Prescriptions developed for the Forest Plan integrate a number of resource and support element activities and produce a variety of outputs when applied to a management area. Each prescription is broken down into the following categories: description, management emphasis, program components, activities, and standards and guidelines.

Management Area Description

Includes a brief description of the physical, biological, and administrative characteristics of the management area to which the prescription applies. The description includes resource management emphasis statements.

Prescriptions are applied to Management Areas (MA's). A list of MA's is included in Appendix B. The MA's are marked on maps and can be identified on the ground. Data is generated by MA to estimate the capability of the MA to provide goods, services, or resource uses under each prescription.

MA's are not necessarily contiguous areas. Separate areas of the same type are found with the total of such areas defining a single MA. Each prescription is expected to have the same consequences or to produce the same average results when applied to any acre within the MA. The MA listing in Appendix B is a quick reference.

Management Emphasis

This summarizes the management direction for the management area and highlights some of the most important direction.

Program Components

A program component is a grouping of activities such as timber sales or wildlife habitat improvement for which budgets are prepared and for which a manager makes decisions on the spending level and scope, direction, or quality of the work to be performed. Individual projects are grouped by program component for use in short-range program planning and in the budget process. An index of program components is provided in Appendix A.

Activities

An activity is resource management work done to carry out a management practice. Activities are grouped into resource or support elements and are identified by alpha/numeric codes such as A201 for Recreation Planning Inventory. Each activity has a unique code, title, and unit of measure for the work performed. An index is provided in Appendix A.

Standards and Guidelines

Standards and guidelines direct the timing and intensity of planned activities, specific policies that apply to activities in each prescription, mitigation measures, and coordinating requirements needed to protect resources and the environment.

There are two categories of standards and guidelines: Forest-wide Standards and Guidelines; and Management Area Standards and Guidelines. Forest-wide Standards and Guidelines apply to the Forest as a whole. The Management Area Standards and Guidelines are specific either to the management area as a whole or to individual analysis areas in a management area. In some cases, there is a difference between the Forest-wide Standards and Guidelines and the Management Area Standards and Guidelines for a resource area and/or activity. In these cases, the Management Area Standards and Guidelines supercede the Forest-wide Standards and Guidelines.

Unless otherwise noted, the management practices indicated in various Standards and Guidelines take place annually.

How to Apply the Prescriptions

To apply management practices or activities, managers will locate the practices or activities on management and analysis area maps and field check the location to determine the applicable standards and guidelines to be met. Then the suitability of applying the practices or activities is determined for that specific location. Practices or activities are monitored in accordance with Chapter 5, Monitoring Plan, to ensure compliance with costs, outputs, and standards and guidelines.

The transition between vegetative zones is highly variable. The variability results in isolated parcels of individual analysis areas that do not match the Forest map of management areas for which the standards and guidelines were written. In these instances, proposed practices or activities are governed by standards and guidelines from the management area description that most accurately depict the real situation on-the-

It is necessary to read all of the standards and guidelines for all of the program components. For example, many Standards and Guidelines that affect wildlife habitat management are under the timber program components, because they are coordination requirements for activities generated by the Timber program.

If there are numbers in the prescriptions, such as "on 80 percent of the area ...," then the intent is to apply that prescription to 80 percent of the acreage of each significantly sized project. In other words, it is not proper to say... "This timber sale is all within the 20 percent excluded by that prescription." Rather, approximately 80 percent of the sale area is managed under the prescription. It is realized that it may not be in the best interest to literally apply the exact percent figure in every project. Consequently, variations are allowed if they are well justified and documented as part of the NEPA process.

If the planned action is consistent with prescriptions, the manager performs an environmental analysis (FSH 1909.15). The Environmental Assessment (EA) documents coordination of the action with the Standards and Guidelines and provides for additional management constraints, if necessary. The responsible official approves the Decision Notice.

If the planned action is in conflict with Standards and Guidelines or is unsuitable for the area, the line officer must decide whether to proceed with the project or amend the Forest Plan. If it is decided to implement the action, the District Ranger prepares an EA documenting the need for and significance of an amendment to the Forest Plan. If, based on the environmental analysis, the amendment is determined not to be significant, it may be implemented by the Forest Supervisor following appropriate public notification [36 CFR 219.10].

Activities, outputs, and standards are monitored and evaluated according to the Monitoring Plan (see Chapter 5). The Monitoring Plan specifies the criteria for evaluating the need for amendments or revisions to the Plan.

Coordinating Requirements

The Standards and Guidelines (S&G's) located in this section of Chapter 4 are not specific to a management area or a particular program component.

Resource Coordination

Planned programs and projects such as timber sales, allotment management plans, and other management activities use the appropriate interdisciplinary process.

Law Enforcement

Law enforcement efforts are accomplished through cooperative efforts with other agencies and with Forest employees. The objectives of the program are to enforce Forest regulations, with special emphasis on off-road driving management, firewood theft, and cultural resource vandalism.

Integrated Resource Management

Integrated Resource Management (IRM) is an interdisciplinary approach to project design and implementation that recognizes the complex biological, administrative, and political interrelationships on the Forest. In Region 3 the IRM approach consists of a thirteen step process that closely parallels the NEPA process. The first step is review of the Forest Plan, followed by the initial determination of the parameters of the project. Subsequent steps guide the design process so that NEPA compliance is assured, citizen participation is sought and utilized, adequate environmental analysis is accomplished, and successful on-the-ground implementation is achieved.

Integrated Stand Management

Integrated Stand Management (ISM) is a concept for designing a complex timber sale by identifying the stand (or portion of a stand) to be treated and incorporating within its unique treatment prescription consideration for all the appropriate resources. ISM also recognizes that all vegetative communities within a given area are interrelated and therefore, timber stands that are proposed for treatment must be INTEGRATED with each other and with the surrounding area.

A timber sale is a complex project with the potential to enhance or impact a great number of resources and requires, for its successful completion, a sophisticated consideration of several land management objectives. To accomplish its objectives, while minimizing its impacts, a timber sale design must pass through a series of preparation phases over an appropriate period of time. Sale complexity determines the amount of time necessary for the completion of any one phase.

Cultural Resources

A complete or sample cultural resources survey is done on project undertakings. The intensity of sampling is determined by using FSM 2360.

Ground disturbing projects receive cultural resources clearance. This includes projects proposed in areas that have been previously cleared for other projects. Projects, not areas, receive clearance. Projects receive clearance without additional archaeological field work whenever sufficient prior field work has been done to clear the project.

Cultural resource reports are reviewed by the Forest Archaeologist who also determines site significance and recommends, through the Forest Supervisor, nomination of sites to the National Register of Historic Places, as prescribed in FSM 2360 and in consultation with the State Historic Preservation Officer. Pertinent reports and documentation are completed before cultural resource clearance is granted and projects proceed, unless otherwise agreed to with the SHPO and, if necessary, Advisory Council on Historic Preservation (ACHP).

Any area, even those that have been inventoried at a 100 percent level, may have cultural resource sites present that have not been identified or marked. Project administrators and operators are alert for such sites. It is the project administrator's responsibility to mark, protect, and report such unreported sites.

Cultural resource sites are located and protected from project activities according to direction in FSM 2360 and 2430. Unauthorized disturbance of cultural resource sites is handled according to appropriate laws and FSM direction.

Old-Growth

There are approximately 18,000 acres of old-growth within areas designated not availablefor timber management such as wilderness and RNA's on a Forest-wide basis.

FOREST-WIDE AND MANAGEMENT AREA STANDARDS AND GUIDELINES

The following Standards and Guidelines contain the specific management direction needed to implement the Forest Plan.

Forest-wide Standards and Guidelines apply to the Forest as a whole and are contained in pages 51 through 97.

Individual Management Area (MA) Standards and Guidelines are found on pages 98 through 205.

Forest Wide Management Direction

Program

Components Activities Standards and Guidelines

Recreation Planning and Inventory

Recreation

Annually maintain and update RIM data and RIM reports using information provided through campground hosts, compliance checks, facility condition inventory, and other sources.

Annually prepare/review and approve operation and maintenance plans for developed sites and schedule maintenance for facilities on a regular basis. Manage facilities to RIM Condition Class I (satisfactory).

Administer commercial public service, developed recreation operations. Ensure that there are annual inspections of equipment for public health and safety per the American National Standards Institute B77.1 - 1982.

Issue and administer dispersed recreation special-use authorizations to provide needed recreation opportunities, minimize user conflicts, and ensure public safety and resource protection.

Review the ROS inventory as a part of project planning and make necessary corrections/refinements following field checking. Use the ROS inventory to analyze impacts to ROS classes due to management activities such as timber sales, range projects, and firewood sales. ROS classes are used in developing decisions on road standards and density. Each District maintains a ROS map that is updated as projects modify ROS classes. Total acres of any ROS class are allowed to change no more than ±15 percent from the updated inventoried levels during the first decade. These are:

ROS Class	Acres
Primitive	32,457
Semi-primitive, nonmotorized	73,537
Semi-primitive, motorized	639,112
Roaded, natural	840,609
Rural	54,904
Urban	29,794

General Cave Management[8]

Known caves are inventoried and evaluated Forest-wide under provisions of the Federal Cave Resources Protection Act of 1988 to determine the resources, their condition, and significance. Newly discovered caves are scheduled for evaluation as they become known.

[8] See Coconino National Forest Cave Resource Management Guide for specific details concerning inventory, classification, evaluation, ROS, monitoring, ethics, research and cave search and rescue.

Program
Components Activities Standards and Guidelines

Caves determined to be significant under the Act, or which are being evaluated, are exempt from locational disclosures. The location and resources of caves are also kept confidential when need is to protect archaeological resources, wildlife habitat, cave biota, geological features and paleontological deposits. An inventory is maintained of all caves.

Management priorities are assigned based on resource inventory, evaluation of current conditions, and long-term management of objectives.

A District Cave Implementation Schedule is prepared after completion of the District's cave inventory, evaluation and assignment of management priority. The Schedule includes all significant caves and other caves the District deems appropriate to include. The Implementation Schedule lists funding priorities for cave management, identifies interim protection measures when needed, identifies monitoring for each cave, and schedules Limits of Acceptable Change (LAC) and management plans when needed.

Individual cave management plans are scheduled and prepared for caves with high resource, educational, recreational value, hazardous conditions or heavy use. These plans include monitoring and guidelines for appropriate use and necessary restrictions. Plans are developed with appropriate environmental analysis and public participation, and are conducted so that locations of caves are kept confidential.

Significant caves are monitored to determine visitor impacts and the conditions of key resources. Management techniques will be adjusted, based on the results of monitoring.

Caves used, or recently used, by bat colonies are generally managed to maintain or enhance bat populations. Protection measures may include education, seasonal closures, and gating. Monitoring is used to determine population dynamics. Both monitoring and management include consultation with State and Federal wildlife agencies.

Appropriate caves are interpreted to increase public awareness of the need to protect and preserve cave resources.

Research projects within caves require a permit. Permits are issued on a case-by-case basis by the District Ranger.

There is generally some risk involved in cave exploration and risk-taking is part of the caving experience. Encourage the County Sheriff's departments to plan for cave search and rescue and to coordinate with caving organizations and the Forest.

Program
Components Activities Standards and Guidelines

Ground-Disturbing Activities

Surface land management decisions include consideration of potential impacts to all cave resources.

Any management activity planned near or within a known cave area is examined for its potential impacts to caves and karst features. This includes activities which might increase sedimentation, sterilize soil, change a cave's natural hydrology or water quality, add nutrients or other chemicals (including pesticides, herbicides and fertilizers), or modify the cave. Cave entrances and karst features are also not used as disposal sites for slash, waste rock or fill materials, and other refuse.

Maintenance of cave microclimate, hydrology, and entrance vegetation is needed in order to protect long-term cave ecology. In general, during project planning evaluate at least a 300 foot radius around cave entrances, infeeder drainages, and surface areas immediately over cave passages for the effect on cave resources.

Generally, major alterations to caves are not permitted. Following an excavation to locate an unknown cave, the condition of the original opening is mimicked so that air flow and wildlife use is not altered and the surface visual resource is maintained. Requests to locate caves using special excavation techniques (explosives, heavy machinery, removing large volumes of earth) are analyzed and considered on a case-by-case basis in compliance with the Archeological Protection Act and NEPA.

Caves of high resource values, and a suitable buffer area of approximately 1/4 mile from known cave passages, may be recommended for withdrawal from mineral entry.

Controlled source seismic surveys requiring explosives or other disruptive techniques are not conducted over or close enough to known caves to create unnatural disturbances.

Drilling is not allowed over known caves or within a suitable buffer. No sediments from erosion of access roads and drilling sites is allowed to wash or be discharged into caves or karst features. If previously undiscovered caves are encountered above the zone of saturation for the regional aquifer during drilling operations, reasonable precautions are taken to protect the cave. This includes sealing the casing above and below the cave to prevent air flow and water leakage.

Program
Components Activities Standards and Guidelines

Pursue instream flow rights when existing rights are lacking or inadequate in order to protect recreation interests.

Special Designations

Review and update implementation schedules for formally designated areas during the planning period, such as Wilson Mountain National Recreation Trail and the Verde Wild and Scenic River.

The Arizona Trail is a state-wide trail of which a portion traverses the Coconino National Forest. The trail goes from the north end of the Peaks Ranger District to the Mogollon Rim on the Mogollon Rim Ranger District. This Trail will be a non-motorized pathway. The route will use public lands to ensure public access; use existing trails, where use of the trails as part of the Arizona Trail does not cause substantial negative impacts; allow day-long, weekend, or week-long travel segments; accommodate hikers, equestrians, cross-country skiers, and back-country bicyclists where physically possible and where management permits; provide representation of the various life zones, geologic features, native vegetation, wildlife, cultural resources, and resource management practices of the Coconino National Forest; be in harmony with other federal, state, and local government entities, and private landowners; and allow for continued production of outputs from forest resources as stated in the Forest Land Management Plan. **The Forest Plan identifies a corridor, with the f**inal trail location, design, construction, and signing to be accomplished by Forest staff and private sector/volunteer partnerships.

Cultural Resources

Consult with Native Americans when projects and activities are planned in sites or areas of known religious or cultural importance.

Make boughs and herbaceous plant parts used for Native American religious and ceremonial purposes available under conditions and procedures that minimize restrictions, consistent with laws, regulations, and agreements with Tribes. The written authorization to the Hopi Tribe for gathering without specific individual permits is an example. This authorization does not include such items as firewood removed from the Forest or Kiva logs, which do require a permit.

The Forest complies with the National Historic Preservation Act (NHPA) in decisions involving interactions between cultural and other resources. Cultural resources are managed in coordination with the State Historic Preservation Plan (SHPO). Until evaluated, the minimal level of management for all sites is avoidance and protection.

Specific Standards and Guidelines derived from the settlement agreement for the Save the Jemez lawsuit are subject to adjustment, should that agreement be modified. In that event an amendment to the Forest Plan will be issued.

Program
Components Activities Standards and Guidelines

Project undertakings are inventoried for cultural resources and areas of Native American religious use. Inventory intensity complies with Regional policy, and the settlement agreement for the Save The Jemez Lawsuit, and is determined in consultation with the State Historic Preservation Officer (SHPO). Generally, inventory standards are:

- One hundred percent survey of all projects causing complete surface disturbance;
- When less than 100 percent survey is deemed appropriate, the specific sample fraction surveyed is determined in consultation with the State Historic Preservation Officer and is generally greater than 10 percent. Factors determining when sampling is appropriate include projects with dispersed or minimal impacts, low expected archaeological site density, ground cover, and types of archaeological sites present in the area;
- Consultation with appropriate Native American groups;
- Consultation with the SHPO, and if necessary, the Advisory Council on Historic Preservation (ACHP), before project implementation.

Program
Components Activities Standards and Guidelines

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Program
Components Activities Standards and Guidelines

Significant, or potentially significant, inventoried sites are managed to achieve a "No Effect" determination, in consultation with the SHPO and ACHP (36 CFR 800).

Monitoring during and after project implementation is done to document site protection and condition.

Management strives to achieve a "No Effect" determination.

When sample surveys, rather than 100 percent survey coverage, are done for project clearances, survey locations and sample intensity are based on areas of greatest project impact, likely locations for cultural resource sites based on archaeological experience, land management planning, dispersion of sample coverage, certain topographic features specified in the Save the Jemez lawsuit settlement agreement, and likely areas based on the Forest site density predictions.

Identified sites are evaluated for their National Register eligibility when they are severely damaged, when they will be impacted by an undertaking, or information about the uniqueness, commonness, and characteristics of their site class are sufficiently known to make an informed decision. Sites for which determinations of eligibility have not been made are managed as if they are eligible, unless consultation with the SHPO indicates otherwise.

For each full-time professional cultural resource specialist employed by the Forest, at least two site nominations, one archaeological district nomination, or one thematic or multiple resource nomination will be made each year to the National Register of Historic Places. Or, alternatively, the Forest will coordinate with other Forests to prepare a joint district, thematic, or multiple resource nomination.

Inventoried sites allocated to management categories, and/or eligible or potentially eligible for the NRHP or potentially eligible for the NRHP are systematically revisited by regularly scheduled patrols, and by cultural resources specialists to assess natural deterioration, vandalism, or pilfering. Inspections are made at least biannually of properties that have been listed in or nominated to the National Register. Sites most susceptible to natural deterioration and/or human disturbance are monitored frequently. Rapid natural deterioration, or susceptibility to such, requires stabilization, restoration, and/or data recovery. Vandalism or pilfering requires protective measures such as signing, remote sensing, increased patrolling, investigations, stabilization, restoration, and/or data recovery. Specific sites or areas may be closed to off-road driving and withdrawn from mineral entry. Law enforcement is planned and implemented to minimize resource damage and user conflicts. Signing is appropriate to inform and educate the public and minimize direct law enforcement activity. Aggressively pursue violations.

Program
Components Activities Standards and Guidelines

Continue to interpret cultural resources through lectures, tours, papers, reports, publications, brochures, displays, films, trails, signs, and other opportunities.

Develop a program to complete 100 percent coverage of the Forest's cultural resource inventory by 2000.

The first priorities for cultural resources protection, enhancement, and interpretation are those sites that are easily accessible, have major interpretive potential, or are in major need of repair. Priority sites for signing are the C. Hart Merriam Base Camp, Honanki Cliff Dwellings, Elden Pueblo, Sacred Mountain, Palatki Cliff Dwellings, and Clear Creek Ruins. Priority sites for repair and stabilization are Honanki Cliff Dwellings, Palatki Cliff Dwellings, Sacred Mountain, Clear Creek Cliff Dwelling, and General Springs Cabin. Priority sites for developing interpretive brochures are Elden Pueblo, Sacred Mountain, Red Tank Draw Petroglyphs, Honanki Cliff Dwellings, Palatki Cliff Dwellings, and Clear Creek Ruins.

Priorities are to:

- Survey to clear projects.
- Survey to fill in gaps in existing inventory coverage.
- Survey areas of known high site densities.
- Survey areas that would do the most to answer current archaeological questions.

Computerize cultural resource site information by 1990.

Maintain a form for tracking compliance of each undertaking with the requirements of the National Historic Preservation Act.

Stabilize or repair damaged National Register sites or other sites funded by Regional priority.

Continue to develop the Elden Pueblo Interpretive Site and the cooperative education program with the Museum of Northern Arizona.

Encourage universities to conduct summer field schools to assist in cultural resource survey and excavation work and to provide the Forest with scientific knowledge.

Periodically focus media attention on Elden Pueblo and/or other sites to educate the public and further volunteer interest in resource management. Work with community organizations, businesses, and other agencies to promote Arizona Archaeology Week. Feature significant finds and significant damage in the media to increase public awareness of benefits and problems.

Program
Components Activities Standards and Guidelines

General Crook National Historic Trail

Manage the 138-mile trail corridor on National Forest Land from Fort Whipple to Fort Apache and associated historic sites and side trails for potential Congressional designation as a National Historic Trail. Management requirements for the currently designated National Recreation trail are integrated and expanded by the Historic Trail designation. These standards also apply to those portions of the Trail on the Prescott and Sitgreaves National Forests. Evaluate and nominate qualified historic sites to the National Register of Historic Places by preparing and submitting the proper forms.

Use of motorized vehicles, except vehicles designed to travel over-the-snow, such as snowmobiles, on any portion of the route not already designated and designed for general vehicle travel is prohibited. Emphasize foot and horse travel recreation activities. Provide adequate signing to advise publics of motorized restrictions.

Manage resource activities to meet Visual Quality Objective (VQO) of foreground Retention, considering the historic qualities of the characteristic landscape.

Coordinate trail management, use, and development with other resource management considerations.

Within 2 years of Congressional designation as a National Historic Trail, formulate a comprehensive trail implementation schedule to promote the historic and cultural significance of the Trail, incorporating the direction outlined in this Plan. Recognize the needs of the disabled and those with limited mobility in developing access facilities for the Trail. Propose recreational facilities for the Trail that are related to significant interpretive and recreation points of interest on or adjacent to the Trail. Emphasize protection for the historic value of the Trail route. Develop one representative visual logo for the entire Trail. Revise and expand current publications in cooperation with local sponsors.

Following is management direction for each section of the trail.

Prescott NF- Fort Whipple Site - Coordinate construction of historic/interpretive marker (use logo) with local support to mark the western terminus of the trail. No trail corridor is developed.

Prescott NF - Dewey - Coordinate with Arizona State Parks and Transportation Departments to construct roadside marker. All subsequent roadside markers to follow similar coordination. Use trail logo.

Program
Components Activities Standards and Guidelines

Prescott NF Junction Cherry Road/FR 372 to Camp Verde Township - Manage 200 foot corridor to preserve evidences of historical roadway and landscape character, including related historic markers and water holes. Maintain and/or construct mile markers and intervisible rock cairns in cooperation with Adopt-A-Trail volunteer groups.

Coconino NF- Camp Verde Township to Clear Creek Campground on Forest Highway 9 - Provide roadside markers (use trail logo) in cooperation with local support. Continue to support interpretive programs at Fort Verde State Park.

Coconino NF- Clear Creek Campground to the Long Valley Ranger District Boundary - Manage 200-foot corridor to preserve evidences of historic roadway and Landscape character, including related historic markers, trees, and water holes. Maintain and/or construct mile markers, and intervisible rock cairns in cooperation with Adopt-A-Trail volunteer groups. Maintain cooperative agreement with Arizona State Parks for maintaining roadside markers at "Thirteen Mile Rock" and affiliated trailhead parking. Seek cooperative support from State and volunteer sources to expand this site as a developed interpretive loop trail route, using the parallel mule and wagon routes. Jointly sponsor a special trail brochure for self-guiding use as one to four day hiking recreation experiences. Design and install interpretive signs at Clear Creek Campground that relate to local historic value of trail for interested motorists. Study development potential of interpretive handicapped facilities for trail section near Clear Creek Campground.

Coconino, Tonto and Sitgreaves NFs - Long Valley Ranger District Boundary to Baker Butte to the Road past Woods Canyon Lake to Junction with Highway 260 - Manage 200 foot corridor to preserve evidence of historic roadway and landscape character, Nationalincluding related historic trees, markers, grave sites, and water holes. ForestsManage overnight camping within corridor to protect the historic roadway and related features. Maintain and/or install intervisible markers in cooperation with Adopt-A-Trail volunteer groups. Maintain markers throughout entire corridor, including sections routed along existing roads. Provide junction signs for side connecting trails to the Highline National Recreation Trail on the Tonto National Forest. Jointly publish with the Tonto, in cooperation with local sponsors and interested groups, a Mogollon Rim Trail Guide, highlighting the historic and cultural significance of the General Crook route and other recreational opportunities of the Highline and side connecting trails in cooperation with Arizona State Parks. Adopt-A-Trail groups develop a special interpretive trail and handicap access section adjacent to Highway 87. Study development of interpretive facilities at significant historic sites.

Program
Components Activities Standards and Guidelines

Sitgreaves NF - Junction of Highway 260 and FR 139 (near Clay Springs) to terminate at Fort Apache - In cooperation with Arizona State Parks and Transportation Departments, construct roadside markers at known key points along this section. Seek cooperation of the White Mountain Apache Tribe for placement of an historic marker to indicate the eastern terminus of the trail.

Visitor Information Services--Standard Service Level Management

Develop and implement a VIS program by the fifth year of the decade, including, but not limited to, displays for Forest Service offices and selected VIS sites.

Maintain VIS sites/facilities on a 5-year program where at least 20 percent of the facilities are to Level I standards. Other facilities are maintained at not less than Level 3 standards.

Train receptionists to implement their part of the VIS program and monitor the effectiveness of the program. Provide programs at VIS sites where public benefits warrant, during the high use season. Provide patrol for public safety at VIS sites. Repair and maintain handicap trail and fishing site at Cave Springs Campground, using Volunteer Program.

Develop, implement, and maintain the Forest Recreation Opportunity Guides (ROG) during the first decade.

Provide timely reprints of major brochures and guides. Write and develop new information as needed to increase public awareness of recreation opportunities and hazards. Review printed information annually to determine needed updates.

Dispersed Recreation--Standard Service Level Management

Dispersed recreation areas are managed at standard service level.

Manage areas for public safety, resource protection, compliance checks, and capacity monitoring. Dispersed areas are kept clean for aesthetics, health, and safety. Areas damaged due to use are closed and restored as necessary.

Evaluate outfitter-guide needs for the Forest during the first decade. Solicit outfitter-guide service for significant public needs within 2 years after identification.

Maintain cross-country ski and snow play areas for public health and safety, using volunteers and permittees, as well as Forest personnel.

Evaluate the need for additional snowmobile areas and/or trails.

Evaluate the need for additional cross-country ski and snow play areas in the first decade.

Program
Components Activities Standards and Guidelines

Initiate Code-A-Site inventory system Forest-wide to track and prevent potential resource damage due to overuse of dispersed areas.

Off-Road Driving Management

Annually review and update the Off-road Driving Implementation Schedule; amend the implementation schedule as needed to prevent resource damage and/or user conflicts. Areas are closed to off-road driving when adverse resource impacts occur, when conflicts with the minimum management requirements occur, or if areas are too sensitive to withstand driving. The annual implementation schedule will provide for removal of forest products on administered sales.

By the second year of the decade prepare a Forest-wide inventory of off-road driving opportunities and use. Based on the inventory, by the fourth year of the decade update the Off-road Driving Implementation Schedule, and develop and sign an appropriate series of loop trails in various parts of the Forest to disperse use and to provide a variety of experiences in coordination with the ROS management classes.

Prepare an ROG or other literature describing and explaining the off-road driving program. Review annually and update as needed.

Work with representatives of the spectrum of motorized users (including 2, 3, & 4 wheeled vehicles) in developing, designating, and providing information on off-road driving opportunities. This will have special emphasis in MA 13, the Cinder Hills, but will be applied over the major part of the Forest.

Monitor motor vehicle use to determine the effectiveness of the Off-road Driving Implementation Schedule. Repair damage where cost effective and unacceptable environmental damage is occurring. Implement appropriate measures to prevent or minimize damage.

Areas closed to off-road driving at the beginning of the planning period are identified on the Off-road Driving Management Plan Map. Restrictions may be year-round or seasonal. There may be other restricted areas in the future that are not yet identified. Opportunities for recreational off-road driving will be considered in the road closure planning process. For example, existing roads which have eroded to a rock surface and are not likely to continue to erode may be left open and managed as motorized trails to provide a challenging driving experience when determined appropriate through an environmental analysis. These trails are signed for off-road vehicles and are not part of the regular road system. They are not included when calculating the average road density per mile, but should be considered in evaluating wildlife habitat. The following criteria are used to evaluate the need for future closures or restrictions:

- Soils that are receiving, or are expected to receive, damage to the extent that soil productivity will be significantly impaired.

Program
Components Activities Standards and Guidelines

- Slopes exceeding 40 percent where high probability for damage exists.
- Riparian areas being threatened or damaged.
- Meadows likely to be or being damaged.
- Areas adjacent to stream courses where potential for sedimentation is high.
- Areas within water courses or wetlands (permanently or intermittently wet).
- Where the Visual Quality Objectives (VQO) of Preservation, Retention, or Partial Retention are jeopardized.
- Areas of important cultural resource sites vulnerable to damage that are being threatened or damaged.
- Tree plantations less than 10 years old that are likely to be damaged.
- Habitat for threatened, endangered, or sensitive species that is threatened.
- Key wildlife areas being threatened or damaged.
- Areas important to wildlife reproduction, such as, fawning or nesting areas, where disturbance is causing, or likely to cause, significant stress and reduction of reproductive success.
- Restrictions or closures needed to meet road management objectives.
- Areas within municipal watersheds.
- Areas where user conflict must be resolved to ensure public safety.
- Areas considered to be dangerous for winter off-road driving activities.
- Dispersed recreation areas where conflicts exist.

Manageability will be an important criteria in establishing boundaries of areas with restrictions.

Other areas may be seasonally closed to provide opportunities for recreation in a setting without vehicular disturbance such as temporarily changing the ROS class social and managerial settings toward the primitive end of the spectrum. Initially, the Pine Grove and Rattlesnake areas, of approximately 12,600 and 11,100 acres, respectively, are closed annually from August 15 through December 31. These areas are monitored and, based on evaluation of monitoring results, maintained, added to, or cancelled.

Motor vehicle use will be seasonally restricted in designated cross-country ski areas and in big game winter range where there is a conflict.

Bicycle Use

Coordinate with local organized user groups to prepare a ROG for bicycles as use increases in the future.

Bicycle use on Forest roads/trails will be regulated if significant conflicts arise.

Law enforcement is planned and implemented to minimize resource damage and user conflicts. Signing is appropriate to inform the publics and help minimize the need for direct law enforcement activities.

Program
Components Activities Standards and Guidelines

Implement off-road driving restrictions in areas where roads are closed or obliterated and restrictions are necessary to prevent reopening of the roads by motor vehicle users.

Focus media attention on off-road driving management at least annually to enlist public cooperation. Feature volunteer organizations working to improve management.

Visual Resource Planning and Inventory

Revise and update the visual resource inventory during the first decade. Inventory the visual absorption capacity and the existing visual quality level of the Forest in the first decade. Projects are planned to meet or exceed visual quality objectives (VQO).

Review the VQO inventory as a part of project planning and make necessary corrections/refinements following field checking. Use VQO inventory to analyze impacts to VQO classes due to management activities such as timber sales, range projects, and firewood sales. Use the current Forest Visual Resource Management Inventory that lists VQO Forest-wide in conjunction with Forest Plan MA Map and descriptions to plan projects. Acceptable Forest-wide variation is ± 15 percent in each VQO class and relates to the changes from the updated inventory, except no change is allowed in Preservation.

VQO	**Percent of Net Forest Acres**
Preservation	**8%**
Retention	**13%**
Partial Retention	**11%**
Modification and Maximum Modification	**68%**

Allow only one classification movement downward unless a larger movement is justified after doing an environmental analysis for emergency situations such as removal of fire damaged timber or I&DC control needs.

Prepare a viewshed corridor implementation schedule during the first decade for the Interstate highways, U.S. Highways 89, 89A, and 180; Arizona State Highway 87; **State Route 260**; Forest Highway 3, and designated vista areas.

Signing is used for information, management, and safety purposes.

Program
Components Activities Standards and Guidelines

Seek special funding such as S.E.A.M. or donations for such visual resource improvement projects as abandoned mining claims and borrow pits within areas with VQO of foreground Retention or partial Retention that are identified as needing rehabilitation. Improve visual resources through borrow pit rehabilitation in conjunction with other pit uses such as timber sales and mineral sales. Use borrow pits as burial areas for compatible materials such as rock, soil, and slash. Improve visual resources through range or wildlife tank rehabilitation for tanks that do not provide reliable water, following transfer of water rights to reliable sites.

Recreation or VIS Site Construction/Expansion/Season Extension

Prepare concept plans and design review narratives for the Forest's prioritized list of planned developed sites. The list serves as a management guideline, although the Forest's priority list may change as funding dictates or management needs change.

Prepare detailed site plans for the sites scheduled in the first decade.

When opportunities occur outside of the normal appropriations process (e.g., State or local governmental funding, volunteers, or other partnerships) to accomplish additional projects listed beyond the first decade, proceed with planning and accomplishment. If projects are not listed, the appropriate environmental analyses will be done and a decision made whether or not to do unlisted projects.

Trailheads are located to screen and protect water sources and to prevent harassment to wildlife that use the waters.

Consider bear habitat requirements during project planning for developed recreation site expansion or construction.

The following are the Forest's highest priority improvements, listed in order for completion in the first decade. Funding levels may require adjustment of priorities. In addition there is an ongoing program of site rehabilitation including replacement/reconstruction of facilities such as toilets, tables, parking spurs, and portions of water systems. This is included within the constrained Forest Plan budget.

Site	Type	New Units	Additional PAOT
Upper Lake Mary Boat Ramp, Parking, Sanitation	New Construction	18	150
Narrows Picnic Ground	New Construction	20	100

Program
Components Activities Standards and Guidelines

Site	Type	New Units	Additional PAOT
Lower Lake Mary, Parking, Sanitation, area control	New Construction	24	80
Kachina Peaks Trailheads (3)	New Construction	0	150
Crescent Moon Campground	New Construction	60	300
Blue Ridge Reservoir Boat Ramp	New Construction	0	100
Knoll Lake Campground	Expansion	20	100
Bonito or Pine Grove Campground	Expansion	20	100
Mogollon Rim Campground	New Construction	50	250
Crook Trail Access Points (3)	New Construction	0	150
Total			**1,480**

The following are long-term recreational improvements, that are not prioritized at this time. They are listed in alphabetical order. Development of specific facilities could occur before those prioritized based on opportunities for partnerships and sources of funding.

Site	Type	New Units	Additional PAOT
Ashurst Campground	Expansion	56	280
Banjo Bill	Convert to Day Use	0	0
Bonito Group Use	New Construction	2	200
Bootlegger	Convert to Day Use	0	0
Bull Pen Campground	New Construction	50	250
Clear Creek Campground	Expansion	18	90

Program
Components Activities Standards and Guidelines

Site	Type	New Units	Additional PAOT
Mount Elden or Schultz Pass Primitive Horse Camp	New Construction	10	50
Elden Pueblo Cultural Resource Interpretive Site	Parking Lot and Interpretative Signing	0	150
Kelly Canyon Snowplay Area (Parking)	New Construction	0	150
Kinder Springs Group Area	New Construction	2	200
Lake Mary South End Boat Launch	New Construction	0	50
Long Lake Campground	New Construction	30	150
Long Lake Boat Ramp	New Construction	0	50
Manzanita Campground *	Expansion	8	40
Moqui Group Use Campground	New Construction	50	250
Mormon Lake Day Use Fishing Site (Parking)	New Construction	0	45
Pine Flat Campground	Expansion	20	100
Red Rock-Secret Mountain Trail heads (2)t	New Construction	0	105

* Expansion of Manzanita and Pine Flat Campgrounds is in conjunction with conversion of Banjo Bill and Bootlegger to day-use, in order to maintain the same overnight capacity of Oak Creek Canyon. This is per the Sedona-Oak Creek Plan.

Program
Components Activities Standards and Guidelines

Site	Type	New Units	Additional PAOT
Rockledge Fish & Boat Launch Site (Parking Site)	New Construction	0	45
Sycamore Canyon Wilderness	Reconstruction Trailhead Improvement	0	100
Verde River Access Parking	New Construction	0	100
Winter Cabin Trailhead	New Construction	0	50

Wildlife and Fish Operations and Maintenance

Standard

Habitat management for Federally listed species will take precedence over unlisted species. Habitat management for endangered species will take precedence over threatened species. Habitat management for sensitive species will take precedence over non-sensitive species. Follow approved recovery plans.

Wildlife and Fish

Inventory and evaluate wildlife and fish habitat. Use the best available resource data and technical expertise to identify habitat objectives and prepare implementation schedules for key habitats.

The riparian standards apply to areas meeting the riparian definition even though the sites may not have been large enough to be mapped as a discrete unit.

On identified big game winter ranges, treatments are designed to enhance the specified wildlife species. These areas are managed primarily for the welfare of the wildlife species using the area. Where forage is identified as a limiting factor for big game populations, seek opportunities to make available additional forage and implement where determined appropriate through analysis with the IRM and NEPA process.

T&E Operations and Maintenance

Inventory, evaluate, and prepare recovery schedules for proposed, T&E, and sensitive plant and animal species in the first decade or as species are proposed. Monitor approved schedules, reproductive success, and effects of management activities at occupied threatened, endangered, and sensitive species sites. Reintroduce T&E species in accordance with recovery plans.

Program Components	Activities	Standards and Guidelines
		Evaluate potential resource impacts on T&E and sensitive species habitat by projects and activities through a biological assessment (FSM 2670) and conduct appropriate consultation (FSM 2670) when necessary. Provide appropriate protection or enhancement.
		Activities determined to cause disturbance, including public use, are prohibited in the vicinity of occupied peregrine falcon nesting habitat between March 1 and August 15. This seasonal restriction applies to occupied nesting habitat unless the site is determined to be unoccupied. It may be necessary to post signs and/or fence areas to provide protection.

Program
Components Activities Standards and Guidelines

Hedeoma diffusum and Senecio franciscanus are managed by the direction presented in the management plans prepared for each species. Hedeoma diffusum is covered by the Hedeoma diffusum Management Plan and Senecio franciscanus by the San Francisco Peaks Alpine Tundra Management Plan, which are both adopted by the Forest Plan.

Habitat locations for listed plant and animal species remain confidential to prevent unnecessary disturbances or theft. Provide appropriate law enforcement to protect habitat for listed species.

Identify areas where spotted owls occur and protect occupied nesting territory. Complete Forest spotted owl surveys in Decade 1.

Mexican Spotted Owl

Standards:

Provide three levels of habitat management - protected, restricted, and other forest and woodland types to achieve a diversity of habitat conditions across the landscape.

Protected areas include delineated protected activity centers; mixed conifer and pine-oak forests with slopes greater than 40% where timber harvest has not occurred in the last 20 years; and reserved lands which include wilderness, research natural areas, wild and scenic rivers, and congressionally recognized wilderness study areas.

Restricted areas include all mixed-conifer, pine-oak, and riparian forests outside of protected areas.

Other forest and woodland types include all ponderosa pine, spruce-fir, woodland, and aspen forests outside protected and restricted areas.

Survey all potential spotted owl areas including protected, restricted, and other forest and woodland types within an analysis area plus the area 1/2 mile beyond the perimeter of the proposed treatment area.

Establish a protected activity center at all Mexican spotted owl sites located during surveys and all management territories established since 1989.

Allow no timber harvest except for fuelwood and fire risk abatement in established protected activity centers. For protected activity centers destroyed by fire, windstorm, or other natural disaster, salvage timber harvest or declassification may be allowed after evaluation on a case-by-case basis in consultation with US Fish and Wildlife Service.

Allow no timber harvest except for fire risk abatement in mixed conifer and pine-oak forests on slopes greater than 40% where timber harvest has not occurred in the last 20 years.

Limit human activity in protected activity centers during the breeding season..

Program
Components Activities Standards and Guidelines

In protected and restricted areas, when activities conducted in conformance with these standards and guidelines may adversely affect other threatened, endangered, or sensitive species or may conflict with other established recovery plans or conservation agreements; consult with US Fish and Wildlife Service to resolve the conflict.

Monitor changes in owl populations and habitat needed for delisting.

Guidelines:

General

Conduct surveys following Region 3 survey protocol.

Breeding season is March 1 to August 31.

Protected Areas

Protected Activity Centers: Delineate an area of not less than 600 acres around the activity center using boundaries of known habitat polygons and/or topographic features. Written justification for boundary delineation should be provided.

The Protected Activity Center boundary should enclose the best possible owl habitat configured in as compact a unit as possible, with the nest or activity center located near the center.

The activity center is defined as the nest site. In the absence of a known nest, the activity center should be defined as a roost grove commonly used during breeding. In the absence of a known nest or roost, the activity center should be defined as the best nest/roost habitat.

Protected Activity Center boundaries should not overlap.

Submit protected activity center maps and descriptions to the recovery unit working group for comment as soon as possible after completion of surveys.

Road or trail building in protected activity centers should be avoided but may be permitted on a case-by-case basis for pressing management reasons.

Generally allow continuation of the level of recreation activities that was occurring prior to listing.

Require bird guides to apply for and obtain a special use permit. A condition of the permit shall be that they obtain a sub-permit under the U.S. Fish and Wildlife Service Master endangered species permit. The permit should stipulate the sites, dates, number of visits and maximum group size permissible.

Harvest fuelwood when it can be done in such a way that effects on the owl are minimized. Manage within the following limitations to minimize effects on the owl.

--Retain key forest species such as oak.

--Retain key habitat components such as snags and large downed logs.

--Harvest conifers less than 9 inches in diameter only within those protected activity centers treated to abate fire risk as described below, **except for the Clark PAC where trees less than 16 inches diameter will be harvested**.

Treat fuel accumulations to abate fire risk.

--Select for treatment 10% of the protected activity centers where nest sites are known in each recovery unit having high fire risk conditions. Also select another 10% of the protected activity centers where nest sites are known as a paired sample to serve as control areas.

--Designate a 100 acre "no treatment" area around the known nest site of each selected protected activity center. Habitat in the no treatment area should be as similar as possible in structure and composition as that found in the activity center.

--Use combinations of thinning trees less than 9 inches in diameter **(or less than 16 inches in the Clark PAC)**, mechanical fuel treatment and prescribed fire to abate fire risk in the remainder of the selected protected activity center outside the 100 acre "no treatment" area.

--Retain woody debris larger than 12 inches in diameter, snags, clumps of broad-leafed woody vegetation, and hardwood trees larger than 10 inches in diameter at the root collar.

--Select and treat additional protected activity centers in 10% increments if monitoring of the initial sample shows there were no negative impacts or there were negative impacts which can be mitigated by modifying treatment methods.

--Use light prescribed burns in non-selected protected activity centers on a case-by-case basis. Burning should avoid a 100 acre "no treatment" area around the activity center. Large woody debris, snags, clumps of broad-leafed woody vegetation should be retained and hardwood trees larger than 10 inches diameter at the root collar.

--Pre and post treatment monitoring should be conducted in all protected activity centers treated for fire risk abatement. (See monitoring guidelines)

Program
Components Activities Standards and Guidelines

Steep Slopes (Mixed conifer and pine-oak forests outside protected activity centers with slopes greater than 40% that have not been logged within the past 20 years): No seasonal restrictions apply.

Treat fuel accumulations to abate fire risk.

- **Use combinations of thinning trees less than 9 inches in diameter, mechanical fuel removal, and prescribed fire.**
- **Retain woody debris larger than 12 inches in diameter, snags, clumps of broad-leafed woody vegetation, and hardwood tress larger than 10 inches in diameter at the root collar.**
- **Pre and post treatment monitoring should occur within all steep slopes treated for fire risk abatement. (See monitoring guidelines)**

Reserved Lands (Wilderness, Research Natural Areas, Wild and Scenic Rivers, and Congressionally Recognized Wilderness Study Areas): Allow prescribed fire where appropriate.

Restricted Areas (Mixed conifer, pine-oak, and riparian forests)

Mixed Conifer and Pine-oak Forests (See glossary definition): Manage to ensure a sustained level of owl nest/roost habitat well distributed across the landscape. Create replacement owl nest/roost habitat where appropriate while providing a diversity of stand conditions across the landscape to ensure habitat for a diversity of prey species.

The following table displays the minimum percentage of restricted area which should be managed to have nest/roost characteristics. The minimum mixed conifer restricted area includes 10% at 170 basal area and an additional amount of area at 150 basal area. The additional area of 150 basal area is +10% in BR-E and +15% in all other recovery units. The variables are for stand averages and are minimum threshold values and must be met simultaneously. In project design, no stands simultaneously meeting or exceeding the minimum threshold values should be reduced below the threshold values unless a district-wide or larger landscape analysis of restricted areas shows that there is a surplus of restricted area acres simultaneously meeting the threshold values. Management should be designed to create minimum threshold conditions on project areas where there is a deficit of stands simultaneously meeting minimum threshold conditions unless the district-wide or larger landscape analysis shows there is a surplus.

Program
Components Activities Standards and Guidelines

This table has been modified to contain only information pertinent to the Coconino National Forest.

Variable	**Mixed Conifer**		**Pine-Oak**
Restricted Area %	10%	+15%	10%
Stand Averages for:			
Basal Area	170	150	150
18 inch + trees/ac	20	20	20
Oak Basal Area	NA	NA	20
Percent total existing			
12-18"	10	10	15
18-24"	10	10	15
24+"	10	10	15

Attempt to mimic natural disturbance patterns by incorporating natural variation, such as irregular tree spacing and various patch sizes, into management prescriptions.

Maintain all species of native trees in the landscape including early seral species.

Allow natural canopy gap processes to occur, thus producing horizontal variation in stand structure.

Emphasize uneven-aged management systems. However, both even-aged and uneven-aged systems may be used where appropriate to provide variation in existing stand structure and species diversity. Existing stand conditions will determine which system is appropriate.

Extend rotation ages for even-aged stands to greater than 200 years. Silvicultural prescriptions should explicitly state when vegetative manipulation will cease until rotation age is reached.

Save all trees greater than 24 inches dbh.

In pine-oak forests, retain existing large oaks and promote growth of additional large oaks.

Encourage prescribed and prescribed natural fire to reduce hazardous fuel accumulation. Thinning from below may be desirable or necessary before burning to reduce ladder fuels and the risk of crown fire.

Program
Components Activities Standards and Guidelines

Retain substantive amounts of key habitat components:

- **Snags 18 inches in diameter and larger**
- **Down logs over 12 inches midpoint diameter**
- **Hardwoods for retention, recruitment, and replacement of large hardwoods**

Riparian Areas: Emphasize maintenance and restoration of healthy riparian ecosystems through conformance with forest plan riparian standards and guidelines. Management strategies should move degraded riparian vegetation toward good condition as soon as possible. Damage to riparian vegetation, stream banks, and channels should be prevented.

Domestic Livestock Grazing: Implement forest plan forage utilization standards and guidelines to maintain owl prey availability, maintain potential for beneficial fire while inhibiting potential destructive fire, maintain and restore riparian ecosystems, and promote development of owl habitat. Strive to attain good to excellent range conditions.

Old-growth: Except where other wise noted, implement forest plan old-growth standards and guidelines to maintain and promote development of owl habitat.

Other Forest and Woodland Types

Apply ecosystem approaches to manage for landscape diversity mimicking natural disturbance patterns, incorporating natural variation in stand conditions and retaining special features such as snags and large trees, utilizing appropriate fires, and retention of existing old-growth in accordance with forest plan old-growth standards and guidelines.

Guidelines for Specific Recovery Units

This section of the guidelines has been excluded because it does not apply to the Coconino National Forest.

Program
Components Activities Standards and Guidelines

Monitoring Guidelines

Monitoring and evaluation should be collaboratively planned and coordinated with involvement from each national forest, USFWS Ecological Services Field Office, USFWS Regional Office, USFS Regional Office, Rocky Mountain Research Station, recovery team, and recovery unit working groups.

Population monitoring should be a collaborative effort with participation of all appropriate resource agencies.

Habitat monitoring of gross habitat changes should be a collaborative effort of all appropriate resource agencies.

Habitat monitoring of treatment effects (pre and post treatment) should be done by the agency conducting the treatment.

Prepare an annual monitoring and evaluation report covering all levels of monitoring done in the previous year. The annual report should be forwarded to the Regional Forester with copies provided to the recovery unit working groups, USFWS Ecological Services field offices, and the USFWS Regional Office.

Range-wide: Track gross changes in acres of owl habitat resulting from natural and human caused disturbances. Acreage changes in vegetation composition, structure, and density should be tracked, evaluated, and reported. Remote sensing techniques should provide an adequate level of accuracy.

In protected and restricted areas where silvicultural or fire abatement treatments are planned, monitor treated stands pre and post treatment to determine changes and trajectories in fuel levels; snag basal areas; live tree basal areas; volume of down logs over 12 inches in diameter; and basal area of hardwood trees over 10 inches in diameter at the root crown.

Upper Gila Mountain, Basin and Range East, and Basin and Range West Recovery Units: Assist the recovery team and recovery unit working groups to establish sampling units consisting of 19 to 39 square mile quadrats randomly allocated to habitat strata. Quadrats should be defined based on ecological boundaries such as ridge lines and watersheds. Quadrat boundaries should not traverse owl territories. Twenty percent of the quadrats will be replaced each year at random.

Using the sample quadrats, monitor the number of territorial individuals and pairs per quadrat; reproduction; apparent survival; recruitment; and age structure. Track population density both per quadrat and habitat stratum.

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Program
Components Activities Standards and Guidelines

Ecosystem Management In Northern Goshawk Habitats

Applicability:

The northern goshawk standards and guidelines apply to the forest and woodland communities described below that are outside of Mexican spotted owl protected and restricted areas. Within Mexican spotted owl protected and restricted areas, the Mexican spotted owl standards and guidelines take precedence over the northern goshawk standards and guidelines. One or the other set of standards and guidelines apply to all forest and woodland communities but the Mexican spotted owl standards always take precedence in areas of overlap.

Standards:

Survey the management analysis area prior to habitat modifying activities including a 1/2 mile beyond the boundary.

Establish, and delineate on a map, a post-fledging family area that includes six nesting areas per pair of nesting goshawks for known nest sites, old nest sites, areas where historical data indicates goshawks have nested there in the past, and where goshawks have been repeatedly sighted over a two year or greater time period but no nest sites have been located.

Manage for uneven-age stand conditions for live trees and retain live reserve trees, snags, downed logs, and woody debris levels through out woodland, ponderosa pine, mixed conifer and spruce-fir forest cover types. Manage for old age trees such that as much old forest structure as possible is sustained over time across the landscape. Sustain a mosaic of vegetation densities (overstory and understory), age classes and species composition across the landscape. Provide foods and cover for goshawk prey.

Limit human activity in nesting areas during the breeding season.

Manage the ground surface layer to maintain satisfactory soil conditions i.e. to minimize soil compaction; and to maintain hydrologic and nutrient cycles.

When activities conducted in conformance with these standards and guidelines may adversely affect other threatened, endangered, or sensitive species or may conflict with other established recovery plans or conservation agreements; consult with US Fish and Wildlife Service to resolve the conflict.

Within the ranges of the Kaibab pincushion cactus, Pediocactus paradinei, and the Arizona leatherflower, Clematis hirsutissima arizonica, management activities needed for the conservation of these two species that may conflict with northern goshawk standards and guidelines will be exempt from the conflicting northern goshawk standards and guidelines until conservation strategies or recovery plans (if listed) are developed for the two species.

Program
Components Activities Standards and Guidelines

Guidelines:

General

Emphasize maintenance and restoration of healthy riparian ecosystems through conformance with forest plan riparian standards and guidelines. Management strategies should restore degraded riparian areas to good condition as soon as possible. Damage to riparian vegetation, stream banks, and channels should be prevented.

Refer to USDA Forest Service General Technical Report RM-217 entitled "Management Recommendations for the Northern Goshawk in the Southwestern United States" for scientific information on goshawk ecology and management which provide the basis for the management guidelines. Supplemental information on goshawk ecology and management may be found in "The Northern Goshawk: Ecology and Management" published by the Cooper Ornithological Society as Studies in Avian Biology No. 16. In woodland forest cover types, use empirical data to determine desired habitat conditions.

Inventory

Use the R3 survey protocol to get complete coverage of the management analysis area (Kennedy and Stahlecker 1993, as modified by Joy, Reynolds, and Leslie 1994). Management analysis areas should be entire ecosystem management areas if possible.

Complete at least one year of survey, but two years of survey should be done to verify questionable sightings, unconfirmed nest sites, etc. If nesting goshawks are found during the first year of inventory, a second year of inventory is not needed in that territory.

For areas where complete inventories cannot be done, use aerial photographs to locate vegetative structural stages (VSS) 4-6 within the project area and inventory just those sites for goshawk nest areas using R3 inventory protocol. All un-inventoried areas (VSS 1-3) will be managed to post-fledging family area (PFA) specifications while in that stage. If, while using this inventory option, evidence suggests goshawks are present (such as finding plucking perches or molted goshawk feathers) conduct a complete inventory as outlined above.

If forests have goshawks commonly nesting in stands classified as VSS 1-3, use the complete inventory methods for those areas. There may be situations where an area is classified as a VSS 3, based on the predominant VSS class, but in actuality a combination of VSS 4 & 5 predominate the area. For those situations, use the complete inventory methods.

Home Range Establishment

Post-fledging family areas (PFA) will be approximately 600 acres in size. Post-fledging family areas will include the nest sites and consist of the habitat most likely to be used by the fledglings during their early development.

Program
Components Activities Standards and Guidelines

Establish a minimum of three nest areas and three replacement nest areas per post-fledging family area. The nest areas and replacement nest areas should be approximately 30 acres in size. A minimum total of 180 acres of nest areas should be identified within each post-fledging family area.

Nest site selection will be based first on using active nest sites followed by the most recently used historical nest areas. When possible, all historical nest areas should be maintained.

Manage for nest replacement sites to attain sufficient quality and size to replace the three suitable nest sites.

Management Scale

Distribution of habitat structures (tree size and age classes, tree groups of different densities, snags, dead and down woody material, etc.) should be evaluated at the ecosystem management area level, at the mid-scale such as drainage, and at the small scale of site.

Vegetation Management - Landscapes Outside Goshawk Post-fledging Family Area's

General: The distribution of vegetation structural stages for ponderosa pine, mixed conifer and spruce-fir forests is 10% grass/forb/shrub (VSS1), 10% seedling-sapling (VSS2), 20% young forest (VSS 3), 20% mid-aged forest (VSS4), 20% mature forest (VSS 5), 20% old forest (VSS6). NOTE: The specified percentages are a guide and actual percentages are expected to vary + or - up to 3%.

The distribution of VSS, tree density, and tree age are a product of site quality in the ecosystem management area. Use site quality to guide in the distribution of VSS, tree density and tree ages. Use site quality to identify and manage dispersal PFA and nest habitat at 2 - 2.5 mile spacing across the landscape.

Snags are 18" or larger DBH and 30 feet or larger in height, downed logs are 12 inches in diameter and at least 8 feet long, woody debris is 3 inches or larger on the forest floor, canopy cover is measured with vertical crown projection on average across the landscape.

The order of preferred treatment for woody debris is: 1) prescribed burning, 2) lopping & scattering, 3) hand piling or machine grapple piling, 4) dozer piling.

Canopy Cover: Canopy cover guidelines apply only to mid-aged to old forest structural stages (VSS 4, VSS 5, and VSS 6) and not to grass/forb/shrub to young forest structural stages (VSS 1, VSS 2, and VSS 3).

Spruce-Fir: Canopy cover for mid-aged forest (VSS 4) should average 1/3 60% and 2/3 40%, mature forest (VSS 5) should average 60+%, and old forest (VSS 6) should average 60+%. Maximum opening size is 1 acre with a maximum width of 125 feet. Provide two groups of reserve trees per acre with six trees per group when opening size exceeds 0.5. Leave at least 3 snags, 5 downed logs, and 10-15 tons of woody debris per acre.

Program
Components Activities Standards and Guidelines

Mixed Conifer: Canopy cover for mid-aged forest (VSS 4) should average 1/3 60+% and 2/3 40+%, mature forest (VSS 5) should average 50+%, and old forest (VSS 6) should average 60+%. Maximum opening size is up to 4 acres with a maximum width of up to 200 feet. Retain one group of reserve trees per acre of 3-5 trees per group for openings greater than 1 acre in size. Leave at least 3 snags, 5 downed logs, and 10-15 tons of woody debris per acre.

Ponderosa Pine: Canopy Cover for mid-aged forest (VSS 4) should average 40+%, mature forest (VSS 5) should average 40+%, and old forest (VSS 6) should average 40+%. Opening size is up to 4 acres with a maximum width of up to 200 feet. One group of reserve trees, 3-5 trees per group, will be left if the opening is greater than an acre in size. Leave at least 2 snags per acre, 3 downed logs per acre, and 5-7 tons of woody debris per acre.

Woodland: Manage for uneven age conditions to sustain a mosaic of vegetation densities (overstory and understory), age classes, and species composition well distributed across the landscape. Provide for reserve trees, snags, and down woody debris.

Vegetation Management - Within Post-fledging Family Areas

General: Provide for a healthy sustainable forest environment for the post-fledging family needs of goshawks. The principle difference between within the post-fledging family area and outside the post-fledging family area is the higher canopy cover within the post-fledging family area and smaller opening size within the post-fledging family area. Vegetative Structural Stage distribution and structural conditions are the same within and outside the post-fledging family area.

Spruce-fir: Canopy Cover for mid-aged forest (VSS 4) should average 60+% and for mature (VSS 5) and old forest (VSS 6) should average 70+%.

Mixed Conifer: Canopy Cover for mid-aged (VSS 4) to old forest (VSS 6) should average 60+%.

Ponderosa Pine: Canopy Cover for mid-aged forest (VSS 4) should average 1/3 60+% and 2/3 50+%. Mature (VSS 5) and old forest (VSS 6) should average 50+%.

Woodland: Maintain existing canopy cover levels.

Vegetation Management - Within Nesting Areas

General: Provide unique nesting habitat conditions for goshawks. Important features include trees of mature to old age with high canopy cover.

The structure of the vegetation within nest areas is associated with the forest type, and tree age, size, and density, and the developmental history of the stand. Table 5 of RM-217 presents attributes required for goshawks on locations with "low" and "high" site productivity.

Program
Components Activities Standards and Guidelines

Preferred treatments to maintain the desired structure are to thin from below with non-uniform spacing and use of handtools and fire to reduce fuel loads. Lopping and scattering of thinning debris is preferred if prescribed fire cannot be used. Piling of debris should be limited. When necessary, hand piling should be used to minimize compaction within piles and to minimize displacement and destruction of the forest floor and the herbaceous layer. Do not grapple or Dozer pile debris. Manage road densities at the lowest level possible to minimize disturbance in the nest area. Use small, permanent skid trails in lieu of roads for timber harvesting.

Spruce-fir, Mixed Conifer and Ponderosa Pine Cover Types: The nesting area contains only mature to old forest (VSS 5 & 6) having a canopy cover (measured vertically) between 50-70% with mid-aged VSS 6 trees 200-300 years old. Non-uniform spacing of trees and clumpiness is desirable.

Woodland: Maintain existing canopy cover levels.

Human Disturbance

Limit human activities in or near nest sites and post-fledging family area's during the breeding season so that goshawk reproductive success is not affected by human activities.

The breeding season extends from March 1 through September 30.

Low intensity ground fires are allowed at any time in all forested cover types, but high intensity crown fires are not acceptable in the post-fledging family area or nest areas. Avoid burning the entire home range of a goshawk pair in a single year. For fires planned in the occupied nest area, a fire management plan should be prepared. The fire management plan should minimize the risk of goshawk abandonment while low intensity ground fire burns in the nesting area. Prescribed fire within nesting areas should be planned to move with prevailing winds away from the nest tree to minimize smoke and risk of crown fire developing and driving the adults off or consuming the nest tree.

Ground Surface Layer (All forested cover types)

Manage road densities at the lowest level possible. Where timber harvesting has been prescribed to achieve desired forest condition, use small, skid trails in lieu of roads.

Piling of debris should be limited. When necessary, hand or grapple piling should be used to minimize soil compaction within piles and to minimize forest floor and herbaceous layer displacement and destruction.

Limit dozer use for piling or scattering of logging debris so that the forest floor and herbaceous layer is not displaced or destroyed.

Program
Components Activities Standards and Guidelines

T&E Habitat Maintenance

Give priority to maintaining structures for threatened and endangered species.

T&E Plant Habitat Maintenance

Determine whether structural improvements are needed. Maintain structural improvements in operable condition or replace.

Protect occupied Cimicifuga arizonica habitat. Restrict ground disturbing activities within the habitat and provide shade needed for perpetuation of the species. Fence and/or relocate trails where necessary to protect occupied habitat.

Wildlife and Fish Habitat Maintenance

Determine the need for structural improvements and maintain those needed in operable condition or replace.

Wildlife and Fish Coop. With State, Federal Agencies, and Other Groups

Consult and cooperate with Arizona Game and Fish Department (AGFD) to at least achieve habitat management goals and objectives specified in the Arizona Wildlife and Fisheries Comprehensive Plans and strategic plans. Work with AGFD to fully consider opportunities for increasing habitat capacity above the objectives specified in the Comprehensive Plans and strategic plans. Where habitat capacity can reasonably be increased above the objectives specified in the Comprehensive Plan without adversely affecting other resources and uses, work with AGFD to fully consider these opportunities. Implement where determined appropriate through the environmental analysis process. Cooperate with the Fish and Wildlife Service and other agencies and organizations as the need arises. Cooperate with AGFD in evaluating proposals for reintroducing extirpated species into suitable habitat and on fish stocking and public access for fishing. Cooperate with the AGFD to prevent and/or remove unapproved introduced species.

In cooperation with AGFD pursue the possibility of a Sikes Act program to provide user funds for habitat improvement.

Program
Components Activities Standards and Guidelines

Evaluate each planning activity to determine public involvement needs and objectives. Aggressively pursue public cooperation in achieving the objectives of wildlife and fish habitat management by enlisting the support of interested groups or individuals who are willing to help inform and involve the public.

Provide timely public information about closures, fire danger, and other needed information to the AGFD for use in preparation of annual hunt brochures and in weekly news releases during hunting season.

Manage animal damage in cooperation with other agencies and cooperators to prevent or reduce damage to other resources. Direct control toward preventing damage or removing only the offending animal or animals necessary to meet land management objectives.

Nonstructural Wildlife Habitat Improvement

Improve vegetation conditions through seeding a mixture of species of grass, forbs, forage, and browse species desirable to wildlife.

Improve forage conditions by using prescribed fire where environmental analysis shows beneficial effects and in line with approved burning plans.

Manage forage to increase threatened and endangered species and management indicator species where it is determined appropriate through the IRM and NEPA process.

T&E Nonstructural Wildlife Habitat Improvement

Improve T&E and sensitive species habitat. Improvement projects give priority to recovery of T&E species. Conform to approved recovery plans.

Structural Wildlife Habitat Improvement

Develop wildlife waters where needed in accordance with approved plans and fence where necessary to protect wildlife values. Waters in openings shall be located not more than one-quarter mile from the edge of an opening.

Construct raptor perch, roost, and nest structures where applicable to improve habitat.

Install structures, such as gates or barriers, necessary to manage roads to limit or restrict access into key big game winter range and bald eagle nesting and wintering areas. Follow with appropriate administration and enforcement.

Range Resource Planning and Inventory

Standards

Forage use by grazing ungulates will be maintained at or above a condition which assures recovery and continued existence of threatened and endangered species.

Guidelines

Identify key ungulate forage monitoring areas. These key areas will normally be 1/4 to 1 mile from water, located on productive soils on level to intermediate slopes, and be readily accessible for grazing. Size of the key forage monitoring areas could be 20 to 500 acres. In some situations such as high mountain meadows with perennial streams, key areas may be closer than 1/4 mile from water and less than 20 acres. Within key forage monitoring areas, select appropriate key species to monitor average allowable use.

In consultation with US Fish and Wildlife Service, develop site-specific forage use levels. In the event that site-specific information is not available, average key species forage utilization in key forage monitoring areas by domestic livestock and wildlife should not exceed levels in the following table during the forage growing season.

Allowable Use Guide (Percent) By Range Condition And Management Strategy**

Range Condition †	Continuous Season-long	Defer 1 year in 2	Defer 1 year in 3	Defer 2 years in 2	Rest 1 year in 2	Rest 1 year in 3	Rest 2 years in 3	Rest Over 2 years in 3
Very Poor	0	10	5	15	15	10	20	25
Poor	10	20	15	20	20	15	30	35
Fair	20	25	20	30	30	25	40	45
Good	30	35	35	35	35	35	45	50
Excellent	30	35	35	35	35	35	45	50

The above table is based on composition and climatic conditions typical of sites below the Mogollon Rim. On sites with higher precipitation and vegetation similar to sites above the Mogollon Rim, allowable use for ranges in poor to excellent condition under deferment or rest strategies may be increased by 5%. The guidelines established in the above table are applicable only during the growing season for the identified key species

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* Site-specific data may show that the numbers in this table are substantially high or low. These numbers are purposefully conservative to assure protection in the event that site-specific data is not available.

† Range Condition as evaluated and ranked by the Forest Service is a subjective expression of the status or health of the vegetation and soil relative to their combined potential to produce a sound and stable biotic community. Soundness and stability are evaluated relative to a standard that encompasses the composition, density, and vigor of the vegetation and physical characteristics of the soil.

within key areas. Allowable use for key forage species during the dormant season is not covered in the above table. These guidelines are to be applied in the absence of more specific guidelines currently established through site specific NEPA analysis for individual allotments.

Guidelines for allowable use for specific allotment(s) management or for grazing strategies not covered in the above table will vary on a site-specific basis when determined through the Integrated Resource Management (IRM) process.

Allowable use guidelines may be adjusted through the land management planning revision or amendment process. Guidelines established through this process to meet specific ecosystem objectives, will also employ the key species and key area concept and will be monitored in this manner.

Range Resource Planning and Inventory

Range

Range Administration--Receive applications for grazing permits, issue and validate permits, and prepare annual permittee plans as per FSM 2230.

Manage allotments at the C through D level of Management Intensity in existing allotment management plans (AMP). Where appropriate economically and environmentally, implement E Level (MIH 1309.11). No new high stock

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Program
Components Activities Standards and Guidelines

density stock control grazing cells, are initiated until monitoring and evaluation of the Red Hill Cell has been completed in 1989. New cells are predicated on the results of the Red Hill Cell monitoring evaluations.

Permittees are responsible for maintenance of structural improvements as defined in the AMP or the annual operating plan. Maintenance of improvements continues until replacements are built, then the permittee is responsible for maintaining the replacement.

Some State, private, and non-Forest Service lands within the Forest may be excluded from grazing; some lands are grazed under private agreement, and/or waived to the Forest Service for management. (FSM 2230)

Cooperative and technical assistance are provided on state and/or private lands as requested to increase yield or quality of forage for domestic livestock use in accordance with FSH 2209.22 and 2209.23.

Range cooperation with agencies and groups is encouraged. Coordinate range activities with outside, local, State and Federal agencies, and groups.

Survey and evaluate insect and disease infestations on National Forest rangelands. Coordinate with other agencies for methodology to control problems.

Do production and utilization surveys at least every 9 to 13 years for capacity determinations.

Permitted use and capacities are maintained in balance for the allotments by increasing or decreasing numbers of livestock, by changing the management intensity levels, and by initiating changes in livestock class, season of use, and rotation patterns.

Conduct annual allotment inspections to Regional standards as set in FSH 2209.21.

Revise and update AMP'S at least every 10 years to the Regional standards in FSH 2209.21. Management systems are designed to provide multiple-use management. **The integrated resource management (IRM) approach is used during the environmental analysis of AMP's. The scoping portion of IRM will include an interdisciplinary analysis with input from potentially affected and interested parties. Issues that are significant and need to be included in further analysis will be identified. As a minimum the following areas will be considered to determine whether they contain significant issues: range condition, riparian condition, watershed condition, economic feasibility, practicality of implementation, wildlife habitat, recreation opportunity spectrum, timber management, and resource access and travel management.**

Permitted use and capacity are assigned based on full capacity range only.

Program
Components Activities Standards and Guidelines

Manage grazing use to maintain or enhance condition classes of full capacity rangelands.

Full capacity rangeland in unsatisfactory condition that has potential for improvement is treated through appropriate structural and nonstructural range improvements and pasture stocking rate adjustments as described in the AMP'S.

Inventory transitory range resulting from timber harvest and firewood cutting during the allotment planning process, and assign capacity where appropriate.

Unauthorized livestock on National Forest System lands may be impounded and disposed of by Forest Officers. Enforce the grazing regulations, 36 CFR, and Title 18 USC dealing with livestock management.

Place cattleguards where problem gates exist. Priority for cattleguard placement is in the following order: National Forest boundary; allotment boundary; and interior allotment division fences. Where problem gates are located on the boundary with non-Forest Service in-holdings, the Counties, cities, and private landowners are encouraged to install cattleguards.

Waterlots are left open to wildlife for free access except when controlling livestock distribution through water accessibility and when soil moisture conditions adversely effect fence stability.

During summer months, leave water in livestock troughs for wildlife use after domestic animals have been removed from the grazing unit. In winter months in key wildlife winter ranges, provide water where freezing will not damage facilities. Bubblers are used to prevent freezing.

Salt is used to help achieve proper livestock grazing distribution. Permanent salt is not placed within 1/4 of a mile of the edge of any riparian area or tree plantation. Temporary salting may be approved if it will help to achieve a specific management objective for enhancement of riparian areas.

No livestock trailing is allowed except within a permittee's own grazing allotment(s). Exceptions require Forest Supervisor approval and are based on documented results of an environmental analysis.

Reconstruction of Range Structural Improvements

Analyze range structural improvements to determine whether they are needed during the preparation of the AMP'S. Reconstruct only those improvements that are needed. Remove improvements no longer needed and restore the area as appropriate, e.g., old fence is picked up and removed, discontinued fences are completely removed, and ineffective stock tanks returned to production following transfer of water rights.

Program Components	**Activities**	**Standards and Guidelines**
		Reconstruct range structural improvements to appropriate construction standards or better according to FSM 2244, and FSH 2209.22. Maintain range structural improvements in operable condition according to FSM 2244, FSH 2209.22, and FSM 2320.
		Inventory earthen tanks having current water rights that are not contributing to management because of poor location, inefficient placement, or in closed allotments and not needed by wildlife, during the first decade. Exchange the old sites for new sites with similar capacity and transfer the water rights. The old tanks are filled in, reshaped, and returned to production.

Program
Components Activities Standards and Guidelines

On open storage tanks and drinkers provide entry and escape ramps for wildlife.

When existing allotment boundary, Forest boundary, and water lot fences need to be reconstructed or new fences are built, they shall consist of four wires, with the top wire being at least 38 inches but no more than 42 inches above the ground. The bottom wire will be smooth twisted and at least 18 inches above the ground. Highway right-of-way fences will meet highway fence standards.

Interior fences in an allotment are generally three wire fences with the bottom wire smooth and conform to the above height restrictions. Install antelope passes, let-down fences, electric fences, or elk jumps wherever necessary to improve wildlife travelways.

Range Structural Improvement

Improve livestock handling and water facilities for optimum production while maintaining cost-effective management systems and techniques. Construct structural range improvements necessary to implement and maintain range resource management level identified for the Management Area. Comply with construction standards set in FSM 2240, 2320, and FSH 2209.22.

Evaluate proposed earthen stock tank sites for location, adequacy, soil suitability, efficient use of the water resource, and legal requirements. Design structures built in drainages to meet appropriate flood occurrence intervals. Assure that on new stock tanks appropriate documents for construction and water rights application are filed in a timely manner and according to State law.

Range Forage Improvement

Establish woody riparian vegetation as defined in FSH 2509.23 in wet meadows and other riparian areas. Control livestock grazing through management and/or fencing to establish vegetation and eliminate overuse.

Manage all seeding projects to avoid concentrating livestock use in riparian and other sensitive areas.

Noxious and Invasive Weeds
Standard

Incorporate measures to control invasive weeds into project planning, implementation, and monitoring.

Guidelines

Use the Appendix B "Design Features, Best Management Practices, Required Protection Measures, and Mitigation Measures" in the "Final Environmental Impact Statement for Integrated Treatment of Noxious or Invasive Weeds on the Coconino, Kaibab, and Prescott National Forests within Coconino, Gila, Mojave, and Yavapai Counties, Arizona" (2004) for specific mitigation measures. Deviance from Appendix B does not trigger the need for a Forest Plan Amendment; however Required Protection Measures from Section 7 consultation (Endangered Species Act) must be followed. If

Program Components	Activities	Standards and Guidelines
		as a result of environmental analysis, Best Management Practices or Mitigation Measures are modified, document the reason(s) in a NEPA decision.
		Timber Resource Management Planning and Inventory
Timber		Annually update the 10-Year Timber Offering Schedule and records (FSM 2410).
		Reinventory the timber resource each decade.

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Silvicultural Examination and Prescription

Complete compartment examination and prescriptions each decade. Certify projects that meet the treatment prescription objectives (FSM 2400 and FSH 2409.26d).

Insect and Disease Management

Monitor insect and disease activities on all lands annually, including both suitable and unsuitable. Evaluate the extent to which insect and disease control measures are needed to protect either the suitable or unsuitable areas.

Habitat requirements for threatened, endangered, and sensitive species take precedence over insect and disease control.

Cuts are designed to eliminate or reduce dwarf mistletoe infections to manageable levels.

Use pesticides when they are legally available, environmentally acceptable, and are the most cost-efficient means of preventing or suppressing damaging pest outbreaks.

Assist individuals in analyzing trees with insects and disease problems and refer them to the appropriate agency (State Land Department and/or State and County Extension Services) for technical assistance.

Integrated Stand Management (ISM)

Establish and maintain stand diversity through ISM to provide suitable habitat for wildlife in lands suitable for timber production, while maintaining or enhancing timber resource production and timber age class distribution (regulation). See specific management areas for Standards and Guidelines.

10,000-Acre Blocks (10K Blocks)

Combine compartments to form an identifiable block approximately 10,000 acres in size. A range of 8,000 to 12,000 acres is acceptable. Individual blocks may be larger or smaller if approved by the Forest Supervisor.

Standards and Guidelines are applied on a 10K Block basis rather than on an individual timber sale or project basis.

Minimum Management Requirements are exceeded where it is good multiple-use management to do so, such as greater density of snags adjacent to meadows, riparian areas, and key water sources.

Wildlife habitat objectives for each 10K Block are evaluated on an individual stand basis as well as for the entire block.

Evaluate the need for wildlife forage in the 10K Blocks using the Habitat Capability Index, other available data and professional judgement and, where needed, adjust prescriptions to obtain it. These areas are stands of up to 10 acres with reduced GSL

Old-Growth

Standards:

Until the forest plan is revised, allocate no less than 20 percent of each forested ecosystem management area to old-growth as depicted in the table below.

In the long term, manage old-growth in patterns that provide for a flow of functions and interactions at multiple scales across the landscape through time.

Allocations will consist of landscape percentages meeting old-growth conditions and not specific acres.

Guidelines:

All analyses should be at multiple scales - one scale above and one scale below the ecosystem management areas. The amount of old-growth can be provided and maintained will be evaluated at the ecosystem management area level and be based on forest type, site capability, and disturbance regimes.

Strive to create or sustain as much old-growth compositional, structural, and functional flow as possible over time at multiple-area scales. Seek to develop or retain old-growth function on at least 20 percent of the naturally forested area by forest type in any landscape.

Use information about pre-European settlement conditions at the appropriate scales when considering the importance of various factors.

Consider the effects of spatial arrangement on old-growth function, from groups to landscapes, including de facto allocations to old-growth such as goshawk nest sites, Mexican spotted owl protected activity centers, sites protected for species behavior associated with old-growth, wilderness, research natural areas, and other forest structures managed for old-growth function.

In allocating old-growth and making decisions about old-growth management, use appropriate information about the relative risks to sustaining old-growth function at the appropriate scales, due to natural and human-caused events.

Use quantitative models at the appropriate scales when considering the importance of various factors. These models may include, but are not limited to: Forest Vegetation Simulator, BEHAVE, and FARSITE.

Forested sites should meet or exceed the structural attributes to be considered old-growth in the five primary forest cover types in the southwest as depicted in the following table.

The Minimum Criteria for the Structural Attributes Used to Determine Old-Growth

Forest Cover Type, Name	**Piñon;Juniper**		**Interior**		**Aspen**	**Mixed-Species**		**Englemann Spruce Sub**	
Forest Cover Type, SAF Code	**239**		**237**		**217**	**210,211,216,219**		**206,209**	
Site Capability Potential Break Between Low and High Site			**55 Minor**			**50 Douglas-fir**		**50 Englemann Spruce**	
Site	**Low**	**High**	**Low**	**High**	**All**	**Low**	**High**	**Low**	**High**
1. Live Trees in Main Canopy:									
Trees/Acres	12	30	20	20	20	12	16	20	30
DBH/DRC	9”	12”	14”	18”	14”	18”	20”	10”	14”
Age (Years)	150	200	180	180	100	150	150	140*/170**	140*/170**
2. Variation in Tree Diameters (Yes or No)	ND	ND	ND	ND	No	ND	ND	ND	ND
3. Dead Trees									
Standing									
Trees/Acre	0.5*	1	1	1	ND	2.5	2.5	3	4
Size DBH/DRC	9”	10”	14”	14”	10”	14”	16”	12”	16”
Height (feet)	8’	10’	15’	25’	ND	20’	25’	20’	30’
Down									
Pieces/Acre	2	2**	2	2	ND	4	4	5	5
Size (Diameter)	9”	10”	12”	12”	ND	12”	12”	12”	12”
Length (Feet)	8’	10’	15’	15’	ND	16’	16’	16’	16’
4. Tree Decadence Trees/Acre	ND	ND	ND	ND	ND	ND	ND	ND	ND
5. Number of tree canopies	SS/MS	SS/MS	SS/MS	SS/MS	SS	SS/MS	SS/MS	SS/MS	SS/MS
6. Total BA, Square Feet/Acre	6	24	70	90	ND	80	100	120	140
7. Total Canopy Cover, Percent	20	35	40	50	50	50	60	60	70

Piñon Pine: *Dead limbs help make up dead material deficit.
**Unless removed for firewood or fire burning activities

Spruce-fir: *In mixed corkbark fir and Englemann spruce stands where Englemann spruce is less than 50 percent composition in the stand
** In mixed corkbark fir and Englemann spruce stands where Englemann spruce is less than 50 percent composition in the stand

ND is not determined; SS is single-storied; and MS is multi-storied

Program Components	Activities	Standards and Guidelines
		Minimum Management Requirements are exceeded where it is good multiple-use management to do so, such as greater density of snags adjacent to meadows, riparian areas, and key water sources.

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Program
Components Activities Standards and Guidelines

Water Resource Planning

Watershed/Soil/Air

Participate in nonpoint assessments with the State of Arizona as required by sec. 319 (a)(1) of the Clean Water Act (amended 1987).

Evaluate requests for weather modification through the environmental analysis process.

Ensure compliance with PL 92-500 "Federal Water Pollution Control Act" and Arizona Water Quality Standards through the implementation of Best Management Practices (BMP) to prevent water quality degradation.

Best Management Practices:

Use project monitoring information to evaluate BMP'S currently used to reduce nonpoint pollution from activities on the Forest. BMP'S include project planning as well as on the ground measures. By 1995, develop guidelines for implementation of BMP'S on the Forest. In the interim period, a general list of BMP'S has been included below. Apply these practices, depending on individual project and site requirements, to reduce nonpoint source pollution and protect riparian areas.

Filter Strips

Plan for appropriate filter strips adjacent to streamcourses and/or riparian areas, as determined through the IRM process. A filter strip is an area of vegetation and forest litter located adjacent to streamcourse and/or riparian areas for the purpose of filtering sediment, providing bank stability, and in tree/shrub ecosystems providing shade for fisheries habitat. The ability of the strip to trap and filter sediments is a function of the amount and type of material on the ground, and width and slope of the strip. The ability of the strip to provide shade over perennial streams is dependent on the height of the vegetation and orientation of the stream with respect to the sun. Filter strip widths provided below are for average ground cover conditions. Significant topographic changes, such as abrupt canyon edges may be used as boundaries for filter strips, as long as ground disturbing activities beyond the canyon walls do not influence water quality. The table below should be used as a guide for determining filter strip width. Erosion hazard is defined as the risk of erosion and sedimentation that is based on slope, soil type, and the amount and type of material on the ground that is able to trap eroded material.

Program
Components Activities Standards and Guidelines

FILTER STRIP TABLE - NONRIPARIAN STREAMCOURSES

Erosion Hazard	Filter Strip Slope Distance
Severe	1.5 chains on each side of streamcourse
Moderate	1.0 chains on each side of streamcourse
Slight	0.5 chains on each side of streamcourse

- Limited skidding may occur within the filter strip of nonriparian streamcourses as long as the ability to function as a filter strip is maintained.
- Landings, decking areas, machine piling, skid trails, and roads (except at designated crossings) are planned outside of the filter strip of nonriparian streamcourses.

FILTER STRIP TABLE - RIPARIAN STREAMCOURSES

Erosion Hazard	Filter Strip Slope Distance
Severe	2.0 chains on each side of streamcourse
Moderate	1.5 chains on each side of streamcourse
Slight	1.0 chains on each side of streamcourse

- Directional falling and end-lining of logs out of the filter strip without crossing the streamcourse may occur.
- Landings, decking areas, machine piling, limited skidding, skid trails, and roads (except at designated crossings) are planned outside of the filter strip of riparian streamcourses.

Streamcourses

- Designate stream courses and riparian areas to receive protection during projects such as timber sales and road work. As a minimum, those streams shown on 7-1/2 minute quads as stream courses are evaluated for the need to be designated stream courses.
- Existing wood debris in stream channels is not disturbed unless designated for removal as a special project to improve stream channel conditions.
- Logging and other debris that gets into stream channels is removed to above the high water mark before winter rains and snows begin except when an environmental analysis shows that the debris can be effectively used to improve fisheries habitat.
- Locate new roads out of stream courses and water-collecting features such as swales. Relocate roads out of bottom positions and obliterate poorly located segments as they are identified.
- Provide adequate road drainage to prevent concentrated flow and sedimentation.
- Maintain at least 80 percent of the potential crown cover in the riparian area.
- Plan projects, parts of projects, and/or management practices for soil and water resources improvement where watershed condition is unsatisfactory. Incorporate plans for soil and water improvements into project planning for other resources.

Program
Components Activities Standards and Guidelines

Use the following BMP techniques to minimize sedimentation from road construction and reconstruction:

- Outsloped road surface;
- Leadout ditches and relief culverts;
- Energy dissipators on culverts;
- Vegetating cut and fill slopes;
- Riprap installation;
- Rolling grade.

Water Resource Inventory

Conduct watershed condition inventory as outlined in R-3 Hydrology Note 20, dated February 19, 1984, (as updated) by 2000. Complete 60 percent of the inventory during the first decade.

Annually update inventory of gully systems and sheet erosion.

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Program
Components Activities Standards and Guidelines

Inventory riparian communities and areas capable of supporting riparian species by the end of the first decade. Channel condition and aquatic habitat condition will be included in the survey. Plan and design projects in areas of unsatisfactory or degraded condition to promote channel and streambank stability and to improve flow and timing of water. Meet or exceed eighty percent of Regional requirements above the Rim and ninety percent below the Rim by 2030. Manage to achieve at least 25 percent of the currently unsatisfactory riparian areas will be in satisfactory condition by 2000.

As information is available, develop inventory of important groundwater recharge areas. Evaluate management practices to assure that recharge potential is maintained.

Assure compliance with Executive Order 11990, protection of wetlands:

- Locate roads out of wetlands.
- Locate skid trails and decks out of wetlands.

Assure compliance with Executive Order 11988, floodplain management:

- Conduct flood hazard evaluations (100 year flood plain) on all potential land exchanges.
- Design structures built in drainages to meet appropriate flood occurrence intervals.

Inspect areas proposed to be treated with chemical agents such as pesticides and herbicides to ensure that surface or ground water contamination does not occur.

Water Resource Monitoring

Cooperate with the University of Arizona and Northern Arizona University in carrying out the Memorandum of Understanding for work to be continued on the Beaver Creek watersheds.

Evaluate the need to monitor water quality from areas disturbed by management and use activities. Conduct monitoring where needed to assure compliance with the Arizona State Water Quality Standards and P.L. 92-500.

Conduct water quality monitoring of primary contact recreation sites to standards of FSM 2540 and Arizona Water Quality Standards for full body contact waters (swimming and wading). Conduct monitoring as necessary to assure compliance with standards for aquatic life and wildlife where known problems are occurring.

Evaluate watershed condition for its effect on turbidity.

Conduct snow surveys as per cooperative agreement with Soil Conservation Service.

Program
Components Activities Standards and Guidelines

Water Uses Management

Maintain close working relations with the City of Flagstaff to ensure coordination, cooperation, and compliance with permit conditions for the Inner Basin, Upper and Lower Lake Mary, Lake Mary Well Field, and Woody Mountain Well Field.

Take action to legally protect Forest uses of needed waters.

File for water rights on appropriable waters following State procedures. Complete all documentation required for the adjudication process by dates specified by the courts.

Evaluate current and proposed water uses to promote efficient use of Forest Water resources.

Take action to obtain instream flow water rights for fish, wildlife, recreation, and channel maintenance purposes:

- For nonappropriable water uses, check for compliance with Arizona Revised Statutes and R-3 guidelines.
- Participate in State water right adjudications.
- Secure water rights through purchase or severance-and-transfer when additional sources are needed.
- Maintain and update annually an inventory of all water uses on the Forest (WURR).

Water Resource Improvement

Complete Watershed restoration implementation schedule by 2005 to improve all unsatisfactory ecosystems and watersheds. These action plans cover all activities and uses and are supplemental to Forest Plans.

Maintain current satisfactory watershed conditions and improve any unsatisfactory conditions to satisfactory by 2020.

Implement resource improvement projects that are cost-effective and/or are beneficial for maintaining and improving water quality, quantity, and soil productivity. Priority is given to vegetative versus structural measures. On those areas where grazing occurs, projects are only done where there is an approved AMP. Treated areas are protected by grazing management, fencing, and/or other methods, until recovery is satisfactory. On those areas where grazing occurs, management will be evaluated and modified if necessary to be consistent with the objectives of the improvement project. In project planning evaluate the need for planting nonpalatable herbaceous and woody vegetation to discourage concentration of elk and livestock.

Program Components	Activities	Standards and Guidelines
		Implement emergency fire rehabilitation measures where necessary to protect soil and water resources from intolerable losses or to prevent unacceptable downstream damage.
		Enhance watershed condition by obliterating roads causing resource damage. A total of 400 miles of roads will be obliterated by the end of the first decade (average of 40 miles annually).
		Water Resource Improvement Maintenance
		Evaluate the need for maintenance and, where appropriate, do maintenance to protect investments in water resource improvement projects as needs are identified.
		Terrestrial Ecosystem Survey
		Conduct Terrestrial Ecosystem Survey to standards, policies, and guidelines as defined in 2550 TES Handbook and National Cooperative Soil Survey, by the Regional Zone TES team during the first decade.
		Soil information from a Level 3 TES is intended for: ➢ Broad resource, land management, and activity planning at Regional, Forest, and District levels. ➢ Low investment, extensive land management projects such as timber sales and range allotment analysis that do not require site specific, precise, highly detailed soil interpretations. ➢ The initial identification of areas that will require additional specific soil information necessary for project level work as outlined in the Plan.
		Conduct an on-site soils investigation for soil disturbing projects which require site specific, precise, highly detailed soil information which is beyond the scope of what is provided in a Level 3 T.E.S., such as terrestrial ecosystem information concerning inclusions and other miscellaneous areas which is important for site specific projects. Site specific projects would include but are not limited to site preparation, campgrounds, trails, and pit tanks.
		Mining Law Compliance and Administration
Minerals		Process plans of operation under 36 CFR 228 expeditiously. Seek to
		achieve approval of the proposed operation plan or a modified plan within 30 days of the receipt of the proposed operation plan.
		Conduct mining claim validity examinations and initiate contest action when there are conflicts between claims believed to be invalid and planned Forest management or when unauthorized occupancy/use is occurring on a mining claim.

Program
Components Activities Standards and Guidelines

Recommend to the Department of Interior the mineral withdrawals, retentions, revocations, and modifications identified under activity J04 by 1988. These withdrawals are all the Forest special areas currently identified as justifying a mineral withdrawal. During Forest Plan implementation it is possible that additional withdrawal candidate areas will be identified. Any such candidates will be subject to public review and FLPMA procedures.

Evaluate and administer proposed mineral operations in a manner that does not result in a de facto withdrawal. Monitor the implementation of surface resource activities and the application of Standards and Guidelines to determine if de facto withdrawals are occurring.

Notices of Intent, Operating Plans, and EA's/EIS's are used to manage the beneficial and adverse effects from mining activities.

Conduct environmental analysis for mineral projects. Apply Standards and Guidelines recognizing the distinction between temporary or short-term impacts usually associated with exploration activities and the long-term impacts usually associated with mineral development. Emphasize planning to avoid or repair adverse effects on riparian-dependent resources, channel morphology, and/or streambank stability.

Mineral projects meet NEPA requirements. Future EA'S/ EIS'S from other resource areas receive appropriate input from minerals resource. Surface resource projects and plans which have potential for conflict with the development of the minerals resource, such as wildlife implementation schedules, T&E recovery schedules, viewshed corridor plans, and ROS plans will receive input from a Forest Service mineral resource specialist regarding potential impacts on mineral exploration and development and on ways to avoid unnecessary conflicts between surface and mineral resources. Input will also be solicited from the interested and affected publics including, as appropriate, mining claimants, Arizona Department of Mines and Mineral Resources, Arizona mining and prospecting associations, and leasable energy companies.

Minerals Management – Leaseable

There will be no surface occupancy where listed endangered species exist, on slopes greater than 40 percent, on areas where the VQO is foreground Retention, on the Montezuma Castle Backdrop Area, or the portion of Deadman Wash basin adjacent to Wupatki National Monument. On a case-by-case basis, minor exceptions, such as a buried pipeline, may be considered provided the overall foreground Retention VQO is met.

Minerals Management--Oil and Gas

Accept, evaluate, and where appropriate, approve, and administer Forest Service preliminary prospecting permits for geophysical and geochemical prospecting operations.

Program
Components Activities Standards and Guidelines

Review and recommend stipulations to BLM for oil and gas lease applications.

Cooperate with Department of Interior in oil and gas leasing operations, including surface reclamation efforts.

In sensitive areas, in conformance with R-3 standards and guidelines for oil and gas leasing, request inclusion of R-3 Supplement C, Limited Surface Use Stipulation.

Minerals Management--Geothermal

In the first decade, allow further USGS studies to determine whether a geothermal resource exists.

Maintain maps of potential geothermal areas. Process prospecting permits and lease applications. Any lease issued must comply with pertinent regulations and policy guidelines.

Minerals Management--Uranium

Maintain maps of potential mineral locations, data base information, and mining claim information. Process operating plans according to 36 CFR 228 expeditiously.

Minerals Management--Nonenergy

Maintain map of potential mineral locations, data base information, and mining claim information. Process prospecting permits and lease applications expeditiously.

Manage the adverse effects of leasing in areas of high resource sensitivity. Use same criteria as detailed under Mining Law Compliance and Administration.

Minerals Management--Common Variety Minerals

Maintain a list of common variety mineral material source pits. Process applications expeditiously for common variety mineral removal permits.

In-service projects requiring mineral materials will consider environmental concerns, multiple-use objectives, economic costs, and savings opportunities. Project-level environmental analysis will consider environmental potential of new sources as well as existing sources. Project-level environmental analysis will identify the most cost efficient material sites (whether existing or potential sites), based on geologic/geotechnical suitability, excavation/processing costs, and haul costs. Resource considerations will be evaluated at the same time. If other sources are considered, the extra economic costs, environmental concerns, and multiple-use objectives are identified and considered in the decision to select a material source.

Program
Components Activities Standards and Guidelines

Implement the rock resource management direction for aggregate surfacing material by 1992. Conduct geological investigations of aggregate material sources for project planning and for road construction maintenance.

Meet the demand from State, County, and City agencies for aggregate material. This may be accomplished on a free-use basis when they qualify under the requirements of 36 CFR 228.

When possible, coordinate mineral material sources to provide other uses, such as snow play areas. Locate and design new mineral material sources or reopen old ones in a manner consistent with the assigned VQO for the area. Foreground Retention areas will generally not be selected. Involve the Forest Landscape Architect in planning and review phases of pit use and development.

Mineral Reservation and Outstanding Rights

Evaluate and respond within 60 days or less after receipt of a complete operating plan for surface occupancy unless there is a specific reason to extend the time. Work cooperatively with proposed operations of private mineral rights to reduce impacts on National Forest resources. In sensitive resource areas, protect resources by investigating mineral rights using methods such as title searches, BLM record searches, and Zone Geologist involvement.

Mineral Character or Potential Evaluation

Maintain a 1/2" - 1 mile scale Forest map inventory of Forest mineral potential. Obtain mineral reports from Zone Geologist for land exchange cases.

Mining Area Reclamation

Prepare a mined area, reclamation implementation schedule in the first decade. Implement 20 percent of the top priority work in the second decade.

Geological Planning and Inventory

Include a geologist or minerals specialist as part of the interdisciplinary process in the next Forest Plan update.

Forest Land and Resource Planning

LMP/Special Uses/Lands

Develop and maintain the Forest Land Management Plan.

Program
Components Activities Standards and Guidelines

Resource areas provide support to land management planning through input of resource data, technical expertise, and technology transfer between other agencies and organizations in order to define and implement standards and guidelines.

Work with Rocky Mountain Forest and Range Experiment Station (RMFRES) personnel to find appropriate ways to make research results available to and understandable by field personnel.

Coordinate with out-service requests for non-disturbing activities as a part of the program for the Beaver Creek Watershed Biosphere Reserve.

Special-Use Management (Nonrecreation)

Process special-use applications within 60 days or less of receipt. Processing can include referral back to the applicant to provide additional information relevant to the environmental analysis. In these cases a decision may not always be reached within 60 days, but an appropriate action will be taken.

Special-use applications are processed and approved by priority. Top priority is for those that benefit the public interest, the National Treasury, or the National Forest. Require applicants to do the appropriate part, or all of the scoping, data collection, analysis, and documentation of analysis as needed for the NEPA process.

Urban expansion needs are evaluated and appropriate action taken to meet community needs on public lands where environmentally acceptable and logical to do so.

Government agencies with permanent or long-term, high-investment use of Forest land will generally be required to acquire the land for such uses as landfills, airports, and sewage facilities. Exceptions will be made only when it is clearly in the overriding public interest.

Landfills are generally not permitted on the Forest. However, when exceptions are made, they are operated to use the land as efficiently as possible by maximizing the depth of the pit, compaction of the trash, and/or otherwise using methods to minimize the surface area required.

Evaluate requests for transmission corridors based on public need, economics, and environmental impacts of the alternatives. Use existing corridors to capacity with compatible utilities where additions are environmentally and visually acceptable before evaluating new routes. Overbuilding and underbuilding are considered for additions.

New corridors will avoid wildernesses, RNA's, geological and botanical areas, Elden Environmental Study Area, and the ponderosa pine and mixed conifer vegetation types. New corridors will be evaluated for their potential impacts on T&E habitats.

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Components Activities Standards and Guidelines

New corridors are managed to maintain current resource protection and outputs to the degree possible.

Powerlines and towers are built (construction or reconstruction) to specifications compatible with raptor use.

Inspect special-use authorizations for compliance when authorizations are reissued. Inspect electronic sites annually. Other authorizations are inspected through a documented "self-inspection" system implemented by the Ranger or Forest Supervisor whenever an acceptable inspection program can be implemented in this way. If a "self-inspection" system cannot or should not be implemented, then inspections will be made on a priority basis or, if not critical, on an opportunity basis.

New proposals for electronic sites are evaluated on a case-by-case basis for compatibility with other uses and are limited to the existing developed sites (see Forest Electronic Sites Inventory, Appendix C). Nontraditional uses are evaluated and, where appropriate, approved to consolidate users at existing sites, or if necessary, at new sites selected to reduce resource impacts. They are identified and documented through the NEPA process.

Consider use of fire lookouts for electronic sites if certain criteria are met. These include but are not limited to:

- Applicable Visual Quality Objectives will be met;
- Plowing of snow for access during winter months would be performed by the permittee(s), or access by over-the-snow equipment would be required;
- Radiation levels at the lookout tower must not exceed Federal standards;
- The integrity of the tower must not be compromised if antennas are placed on it;
- No antennas will be allowed to obscure the lookout's line-of-sight for detection.

Proposals for increased development by Lowell Observatory on the Anderson Mesa site use the NEPA process and have a site development plan. Construction/reconstruction of FR128 considers observatory needs.

Emphasize coordination of research projects from entities, such as universities, that want authorizations. Ensure protection of resource values and eliminate duplication of projects.

There is a charge for new authorizations whenever appropriate. Convert free-use to charge authorizations when fees are justified. Otherwise, fees are reviewed in accordance with schedules in FSM and FSH.

Authorizations are terminated or suspended when authorization conditions are not met and the holder refuses to comply.

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Components Activities Standards and Guidelines

Evaluate all existing special uses during the first decade to determine whether continued use is justified. If not justified, take actions to terminate on a Forest priority basis.

Appropriate multiple special-use authorizations to a single person, organization, or agency are consolidated into master authorizations in the first decade.

In evaluating proposed apiary permit sites, minimize conflicts between the bears and the bees. Individual sites should be at least 3 miles apart to ensure available forage. Locate hives far enough from livestock/wildlife waters, developed recreation sites, and known concentrated dispersed recreation sites to avoid conflict caused by excessive concentrations of bees.

Right-of-Way Grants for Roads and Trails

Process special-use applications for roads and trails within 60 days or less of receipt. Processing can include referral back to the applicant to provide additional information relevant to the environmental analysis. In these cases a decision may not always be reached within 60 days, but an appropriate action will be taken.

Right-of-way grants are processed by priority, first priority being the public interest and National Forest needs. Generally, only one access road is approved to a parcel of private property whether there are one or many owners. Where there are multiple landowners to be served by the access, issue right-of-way to either local government, an improvement district, or a homeowners association with authority to collect funds for road maintenance. In evaluating requests for access to private land across National Forest fully use the NEPA process including evaluation of all reasonable alternatives (from an engineering and environmental standpoint) regardless of the applicant's stated preference, including those across non-National Forest land. Grant rights-of-way and authorization for road construction only on locations and to plans and specifications that effectively protect National Forest, and other affected ownerships, lands and resources. Counties are encouraged to apply for easements on roads that they maintain. Special-use authorizations to the State for public highways are converted to easements on a priority basis. Counties and cities are issued easements for access to new subdivisions.

Easements for new or reconstructed State or County roads are applied for immediately upon completion of construction, at which time temporary special-use authorizations terminate.

Withdrawals, Modifications, and Revocations

Existing withdrawals were reviewed in accordance with FLPMA and part of the Forest Plan process. Sensitive areas, those requiring special protection, were reviewed and recommended for withdrawal when

Program
Components Activities Standards and Guidelines

appropriate. Examples of these areas are important cultural resource sites, campgrounds, Oak Creek Canyon Scenic Area, and administrative sites. The following list includes the currently identified areas needing a withdrawal in the first decade:

- Forest Road 545 between US 89 and Sunset Crater Volcano National Monument
- Bonito Campground
- Visitor's Center for Sunset Crater Volcano National Monument
- Forest Road 545 located in T25N, R9E
- Snow Bowl Ski Area
- Cave Spring Forest Camp
- Call of the Canyon Recreation Area
- Chavez Crossing Forest Camp
- Oak Creek Vista Recreation Area
- Bell Rock Vista Recreation Area
- Rocky Gulch Research Natural Area
- Casner Canyon Research Natural Area
- Mogollon Rim Botanical Area
- Verde Valley Botanical Area
- Fern Mountain Botanical Area
- Fossil Springs Botanical Area
- Camp Verde Sewer Plant
- Clear Creek Ruins
- Sacred Mountain District
- Winona Village
- Elden Pueblo
- C. Hart Merriam Base Camp
- Honanki
- Nuvakwewtaqa District
- Tuzigoot Phase Pueblos
- Hackberry Basin
- General Crook Road
- Jack Smith Pre-eruptive Pithouse Group District
- Ridge Ruin District
- LeBarron Pit House
- Doney Park Ball Court
- Strawberry Crater District
- Old Caves Pueblo
- Turkey Hill Pueblo
- Medicine Fort
- Palatki District
- Hartwell Canyon District
- Late Pueblos of Anderson Mesa
- **San Francisco Mountain / Mount Elden Area**

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Components Activities Standards and Guidelines

Listed below are the withdrawal continuations, modifications, and revocations which will be recommended to the U.S. Department of Interior:

Withdrawal	Total Acres	Continued	Modified	Revoked	Acres to be Revoked
EO 2046	80	X			
EO 2128	80	X			
SO 10/26/1906	320			X	320
SO 11/23/1906	550	X			
SO 10/23/1907	120	X			
SO 6/22/1908	90	X			
SO 7/10/1908	27.50		X		6
PLO 1091	138.125	X			
PLO 1161	881.81		X		367.36
PLO 1229	1,163.54		X		283.75
PLO 1349	240	X			
PLO 1390	1,072.5		X		1032.5
PLO 1418	320.12	X			
PLO 1545	20	X			
PLO 1583	1,140	X			
PLO 1628	213.6	X			
PLO 1810	28		X		10
PLO 1849	225	X			
PLO 2458	15,094.92		X		unknown*
PLO 3138	102.86	X			
PLO 3152	11,142.45	X			
PLO 3263	5,900.81		X		320
PLO 3264	40	X			
PLO 3686	150	X			
PLO 3858	310	X			
PLO 4144	670.40	X			
PLO 4687	1,103.48		X		unknown
PLO 5209	333.12	X			
PLO 5350	1,023.93	X			
Total					2,339.61

Land Status Maintenance

Maintain current Forest land status records.

Property Boundary Location

Survey and post National Forest landline in conformance with national standards (approximately 26 miles per year). Priorities are:

- Where proposed projects are adjacent to private land;
- Areas of known and potential trespass;
- Backlog, including wilderness boundaries.

* Final acreage will be determined later.

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Components Activities Standards and Guidelines

Request BLM resurveys where development is occurring or complex ownership patterns.

On sites adjoining private land and in Oak Creek Canyon, recreation and cultural resource sites are surveyed and posted as the lands are surveyed.

Use cooperative agreements with adjacent private landowners to share costs of survey whenever possible and desirable.

Enforcement

Document known unauthorized occupancies as they are discovered.

Use Small Tracts Act where appropriate to resolve encroachments.

Decide how to handle new cases as discovered. Assign priorities, as follows: (1) cases where permanent impairment of resources is occurring or is imminent; (2) cases needed to support other resource management activities; or (3) cases that can be easily resolved. In the first decade resolve at least one-third of the documented existing unauthorized occupancies at the time of Plan approval.

Enforce provisions of 36 CFR (Part 261) and Title 18 USC (prohibitions).

Landownership Planning/Land Classification

The Forest has 8 ownership categories for potential land acquisition. The Land Exchange Program operates under several authorities and can be employed to acquire lands that meet the acquisition criteria. The following criteria are applied to a specific parcel of property to determine if lands are appropriate for acquisition.

- Wilderness and Other Administratively Designated Areas -- These include wilderness, undeveloped lands contiguous to wildernesses, geological, archaeological, historical, and botanical areas, Experimental Forests, research natural areas, and administrative sites. Criteria are:
  - Acquire private lands within administratively designated areas.
  - Acquire private lands with development potential adjacent to designated areas.
  - Acquire private lands to achieve ownership patterns to meet management objectives consistent with an area's designation, the applicable standards and guidelines, and the Forest Plan implementation schedule.

Program
Components Activities Standards and Guidelines

- Communities -- There are lands adjacent to or within the communities such as Flagstaff, Sedona, Cottonwood, and Camp Verde. Criteria are:
  - Non-National Forest lands in and adjacent to the communities will generally not be acquired.
  - National Forest lands identified as needed and suitable for community expansion will not be committed to uses incompatible with prospective community needs.

- Recreation Use and Development Areas -- These are lands within existing or potential recreation sites or locations of concentrated public use. Criteria are:
  - Acquire private lands to achieve a landownership pattern that adequately provides for present and foreseeable public needs, such as recreation development, landscape protection, pollution prevention, access to water and public properties, and open space.
  - Acquire private lands or the control of unique or outstanding natural features or significant waters.

- Municipal Watersheds -- These are designated areas where communities obtain municipal water supplies by special authorization, such as Woody Well Field, Peaks Inner Basin, and Lake Mary Well Field. Criteria are:
  - Cooperate with municipalities and water companies to achieve an ownership pattern necessary to protect and improve the watershed.
  - Acquire non-public lands within a watershed to improve or correct management activities incompatible with maintenance of watershed condition and water quality.

- State and Federal Lands Not Administered by the Forest -- These are State lands administered by the Arizona State Land Department, State Parks, Game and Fish Department, or National Guard, and National Monuments administered by the Park Service. Criteria are:
  - Favor landownership adjustments with Agencies where consolidation of ownership provides for more cost efficient management and enhances public use.
  - Retain blocks of contiguous Forest lands adjoining State or Federal lands unless there are logical and mutually beneficial management reasons.

- Small and Scattered National Forest Ownerships -- These are scattered, or highly fractured Forest ownerships, such as the Doney Park, Cosnino and Winona areas. Criteria are:
  - Consolidate the ownership patterns to achieve efficient Forest management. Acquire private lands with multiple-use values.

Program
Components Activities Standards and Guidelines

- Wildlands with Large Non-Forest Ownerships -- These are Forest lands in checkerboard patterns or otherwise intermingled with large private landowners. Criteria are:
  - Acquire into Forest ownership to achieve cost efficient management of Forest lands and to maintain them as Forest type lands.
  - Review acquisition and base-in-exchange plans when private land uses change from wildland and undeveloped uses towards more intensive uses.
  - Pursue acquisition where special resource needs such as key wildlife habitat or key public recreation sites are identified.
  - Acquire threatened and endangered species habitat if adjacent Forest lands do not provide adequate habitat.
  - Acquire riparian habitat, where adjacent riparian areas are in Forest ownership.

- Wildlands with Small Non-Forest Ownership -- These areas where ownership patterns vary from occasional scattered private holdings to small privately held tracts. Criteria are:
  - Acquire where necessary to correct or discourage land uses not compatible with adjacent Forest uses.
  - Acquire where ownership consolidation substantially improves management, is cost efficient, and enhances public use.
  - Special consideration is given to cooperators,such as range permittees, City, County, and State, where acquisition would not be in the best interest of continuing their existing operations.
  - Acquire where special resource needs such as key wildlife habitat or key public recreation sites are identified.
  - Acquire threatened and endangered species habitat if adjacent Forest lands do not provide adequate habitat.
  - Acquire riparian habitat, where adjacent riparian areas are in Forest ownership.

Lands offered by the United States in a land exchange are tentatively classified as base-in-exchange. Currently, the Forest has 21,133 acres classified as base-in-exchange. Because local and physical conditions may change during the life of this plan, other lands may be considered for exchange. They will generally meet one or more of the following criteria:

- Lands needed to meet the needs of expanding communities;
- Isolated tracts or scattered parcels that cannot be efficiently managed;
- Lands that provide consolidation of the public lands;
- Lands that will improve management, benefit specific resources, or increase management efficiency;
- Lands that are necessary to meet overriding **local, regional, and national** public needs;
- Lands within the boundaries of incorporated communities or annexed thereto.
- **Review base-in-exchange plans when private land uses change from wildland and undeveloped uses towards more intensive uses.**

Program
Components Activities Standards and Guidelines

Reclassification must include appropriate public involvement through the NEPA process. The lands classified should be in accordance with local jurisdiction plans and needs.

A parcel of land originally designated as base-for-exchange in the Forest Plan may be deleted from base when:

- The character of the designated parcel or land adjacent to it has changed from its original character.
- Local or State zoning affecting the parcel has changed, altering potential uses in such a way that they conflict with Forest management objectives and practices.

Land Exchange

Accept land exchange proposals on an opportunity basis. Process by priorities agreed to by Forest Supervisor and Regional Forester.

Prohibit encumbrances, such as special-uses, or activities on base-in-exchange lands that will reduce the fair market value or reduce the disposal opportunities. No major investments such as TSI or range betterment projects will be planned on base-in-exchange lands.

Land exchange proposals for the base-for-exchange lands between Cosnino and Velvet Valley Subdivisions will not be accepted for three years following approval of the Forest Plan, unless they are from a local government or other entity that proposes to manage the area as a community area, greenbelt, or for other recreation use according to the wishes of the local residents. If an agreement has not been entered into for such an exchange after three years, other exchange proposals will be considered.

Specific direction on base-for-exchange land in the Sedona area is contained under Sedona Area wide direction as a result of Amendment 12.

Land Acquisition (L&WCFA)

The land purchase program is authorized by the Land and Water Conservation Fund Act (L&WCFA). The following lands are eligible for acquisition with L&WCFA funds:

- Congressionally designated areas;
- Threatened and endangered species habitat;
- Recreation acquisition composites and inholdings.

Program Components	Activities	Standards and Guidelines
		The goals of the composite program are to acquire: ➢ Lands needed for construction of public recreation facilities; ➢ Lands needed for dispersed recreation and open space; ➢ Protection of public recreation resources; ➢ Prevention of private usurpation of public resources and facilities on nearby public land. The following properties are also classified as eligible for acquisition with L&WCFA funds: ➢ Bull Pen Ranch properties on West Clear Creek -- 90 acres; ➢ Upper Beaver Creek properties on Wet Beaver Creek -- 300 acres; ➢ San Francisco Mountain properties including Hart Prairie, Viet Springs, and Dry Lake Hills--1,700 acres; ➢ Secret Mountain properties including those at the base of the Red Rock-Secret Mountain Wilderness in T.18N., R.4E.,--618 acres, and T.18N., R.5E.,--225 acres. Lands eligible for acquisition with L&WCFA funds can also be acquired by exchange or donation. They will be acquired by these if the opportunity occurs and it is appropriate.
		Rights-of-Way Acquisition Acquire rights-of-way to support other resource management activities with emphasis on the timber program.
		Road Maintenance and Management
Transport/Facilities		Operate and maintain roads in accordance with objectives as specified in road prescriptions. Roads not needed for industry, public, and/or administrative use are closed and put to bed or returned to resource production through obliteration. Obliteration includes restoring the original land contour to the degree practical, scarifying, providing proper drainage, and revegetating with appropriate species. Maintain access roads to the lowest standard necessary for two-wheel drive pick-ups for removal of green firewood. Temporary closures using gates or barriers are implemented on roads unsafe for traffic until the hazard is corrected. Seasonally close roads using gates or barriers where the road structural support is inadequate when the ground is wet, and for resource protection or management.

Program
Components Activities Standards and Guidelines

New timber sale roads designated for closure have gates, barriers and signs planned as a cost of the project. Roads planned for closure or obliteration will be signed to inform users of the temporary existence of the road. Turn-arounds are planned and developed at the point of closure.

Manage road densities to achieve an average of 1.1 mile of open road per section in the woodland zone, such as pinyon-juniper, desert, and grassland vegetation types and an average of 2 miles of open road per section in the ponderosa pine/mixed conifer zone. These densities reflect all system roads in maintenance categories 2 through 5, but do not include Federal, State, and County systems. Temporary roads that are only for short-term use and will then be fully obliterated and long term closure roads are not a part of the calculated density. In calculating densities by vegetative type do not include areas having legal or administrative restrictions on roads, e.g., wilderness and research natural areas.

Road densities are based on road density objectives, the resources served, user types, and topography to meet the objectives for management of resources served, using guidance from R3 publication Skidding Distance Versus Road Cost Optimization for Timber Sales.

Provide road signs for public service, direction, information, and safety.

Route markers on roads accepting or encouraging passenger car use will be wooden with the numbers displayed horizontally. Route markers on roads recommended for high clearance vehicles will be fiberglass posts with the numbers displayed vertically.

Inspect road bridges on a 2-year cycle.

Focus media attention on road management at least twice annually.

Trail Planning and Inventory

Develop and implement the Forest trail implementation schedule by the end of the first decade including trail right-of-way needs. See Transportation System and Utilities Corridor Map for the locations of planned routes.

Annually maintain and update Forest trail implementation schedules and the Forest Trails Inventory and Condition Survey. Perform trail assessments at least every 5 years.

Program
Components Activities Standards and Guidelines

Trail System Management

Conduct trail condition surveys, prepare trail maintenance schedules, and sign trails on a "safety first" basis. Maintain trails to planned standards. Promote the Adopt-a-Trail Program. Trail maintenance intensity and schedules are related to the ROS class.

Coordinate with State, County, and communities' park departments to connect Forest trails with parks and green-belt corridors, when it is mutually beneficial, provides better public service and development is compatible with other resource management.

Protect General Crook National Recreation Trail chevrons and route markers and historic mile post markers.

Horse and pack stock are not allowed on these trails:

- Elden Lookout Trail;
- Oldham Trail, the portion between Buffalo Park and the El Paso natural gas pipeline;
- Mount Humphrey's Trail and the Weatherford Trail above Doyle Saddle;
- Fay, Wilson Mountain, West Fork of Oak Creek, Devil's Bridge, and Boynton Canyon Trails within the Red Rock-Secret Mountain Wilderness.

See the Plan maps for specific locations.

FA&O Facility Maintenance

Perform condition surveys on a 3-year cycle. Correct health and safety problems. Perform cost effective energy conservation measures.

Meet State regulations in water sampling and testing on systems subject to the jurisdiction of the Arizona Department of Health Services. Perform sanitary surveys on a 5-year cycle.

Perform routine inspections of lagoons three times per year. Inspect landfills at least two times per year.

Pursue exchange of the existing Sedona Administrative Site for office, warehouse, and parking facilities.

Dam Administration and Management

Ensure that all Class A dams are inspected by a qualified engineer on a 3-year cycle.

Wideband System Operations and Maintenance

Maintain the Forest-wide band communication systems and update on a scheduled basis.

Program
Components Activities Standards and Guidelines

Telephone System Operations and Maintenance

Maintain the Forest telephone system and update when cost effective.

Telephone System Planning

In Decade 1, plan for acquiring and installing a Forest Service-owned system for all stations.

Transportation System Planning and Inventory

Construct/reconstruct roads in accordance with FSM 7700 and FSH 7709.11.

Arterial, collector, and constant service local roads are surfaced.

Intermittent and short-term roads that are used longer than the dry weather season are constructed with enough surfacing to provide for erosion control and structural support for planned use.

In the transportation plan, road densities, construction/reconstruction standards, location, maintenance structures, types of roads, and closure or obliteration are planned to meet the project objectives, minimize resource impacts, ground disturbance, and provide for user safety.

Construct/reconstruct access roads to lowest standard and density necessary for removing firewood to minimize resource impacts and ground disturbance and provide for user safety. Use road maintenance fund deposits from firewood permits to help achieve needed maintenance.

Locate new roads out of riparian areas and water collecting features such as swales. **However, in wet meadows existing roads may also be reconstructed and maintained in accordance with Best Management Practices as defined in the Standards and Guidelines.** Relocate or eliminate roads that are presently in these locations. Obliterate the poorly located segments. Cross streamcourses perpendicular to the flow to minimize bank disturbance and sediment production.

C02, F03Focus media attention on road obliteration and closures biannually. Emphasize road management and resource/wildlife protection as the overriding Forest policy.

Program
Components Activities Standards and Guidelines

FA&O Construction/Reconstruction

Determine FA&O facility needs by evaluating each District's space requirements based on the organization needed to meet Forest resource protection and management objectives and administrative needs:

- Long Valley – Office expansion - 1989
- Blue Ridge – Office Expansion – 1991
- Blue Ridge – Housing – 2 residences – 1993

Existing facilities retained are reconstructed on a maximum 50-year cycle. Provide adequate handicap access to and use of facilities.

Telephone System Construction

In Decade 1, install Forest Service-owned system for all stations.

Fire Management Planning and Analysis

Protection

Continue fire management analysis and planning for activities such as presuppression, detection, suppression, prevention, and fuel treatment.

As an integral part of annual fire management planning, send a letter explaining our annual prescribed fire program and objectives to key persons and/or agencies at least one month prior to the start of the prescribed fire season. Emphasize the positive aspects of managed fire to the public.

In the first decade write implementation schedules for using prescribed fire, including both planned and unplanned ignitions, in each of the fire management zones. The overall objectives for the fire management zones are contained in the Forest Plan.

Prepare fuel treatment plans for projects that generate slash.

Coordinate fuel treatment plans with other resources with input provided by other resource specialists.

Manage smoke from prescribed fires to meet legal standards and to provide for public safety.

Fire Prevention

Improve fire prevention with emphasis on the Flagstaff fire zone. Strengthen fire prevention analysis by stressing thorough investigation of person-caused fires. Adjust prevention program to reduce fires based on identified causes. During the primary fire season(s) daily schedule prevention personnel and activities on a Forest-wide basis to meet the highest prevention needs based on the prevention plan analysis of fire starts, causes, and potential. Hold a news conference in the spring to inform the press about the coming fire season. Focus media attention on fire prevention throughout the fire season.

Program
Components Activities Standards and Guidelines

Work with homeowners associations and homeowners in the Urban Interface to plan and implement measures to reduce wildfire threats to life and property such as:

- Treating vegetation and fuels near homes.
- Providing road ingress and egress for emergency evacuation of personnel.
- Providing road access suitable for use by fire engines including places to turn engines around.
- Providing information to homeowners on measures they can take to reduce the threat of wildfire to their property.
- Providing adequate sources of water for use by fire engines for hose lays, to refill engines, and/or watertenders.

Fire Detection

Use lookouts (fixed detection points) as the primary method to detect fires. Aerial patrols or detection flights supplement fire lookouts when conditions warrant.

Fire Suppression

Fire suppression objectives guide the actions of the fire dispatcher and the initial attack Incident Commander in selecting appropriate methods to suppress a fire.

Fire suppression objectives are established for five suppression zones.

Small acreage objectives are specified where resource values are high and/or a fire in that location is a threat to life or property. In these situations, high intensity suppression methods are used, such as, air tankers, dozers, and large commitments of ground forces. Large acreage objective means that resource values at risk are lower, and suppression methods that are less costly and less damaging to the resource are used.

Suppression objectives are used to guide the selection of suppression methods. In all cases, when a fire is declared a wildfire, it will be suppressed. Suppression action will be fast, energetic, and thorough, regardless of the size of the fire.

The objectives by suppression zone are as follows:

- Urban Interface - The suppression objective is to hold fires to 10 acres or less per fire start. This zone is the urban interface and an area up to 10 miles long in a southwesterly direction from urban areas. Fires pose a threat to life and property. The zone has high priority for fuel treatment dollars. Prescribed fire, using planned ignitions, is used to accomplish fuel treatment and resource management objectives. Suppression tactics are selected that have the least impact on the land and meet the suppression objective.

Program
Components Activities Standards and Guidelines

- Commercial Timber Lands - The suppression objective is to hold fires to 100 acres or less per fire start. This zone consists of the remainder of the commercial timber land. Prescribed fire using both planned and unplanned ignitions is used to accomplish fuel treatment and resource management objectives. Suppression action gives top priority to protecting life and property, resource protection, and protection to private in-holdings and other landownership.
- PJ and Desert Grasslands - The suppression objective is to hold fires to less than 1,000 acres per fire start, to minimize suppression costs, and to provide for maximum personnel safety. In ponderosa pine stringers or other identified important wildlife habitat the suppression objective is 300 acres per fire or less. This zone consists of grassland, desert shrub, pinyon/juniper, some unsuitable and noncommercial timber land other than designated wildernesses. Prescribed fire using planned and unplanned ignitions is used to accomplish fuel treatment and other resource management objectives. Suppression action gives top priority to protecting life and property, and protection to private in-holdings and other landownership. Suppression methods are chosen that minimize impact on soils, water, and other resources.
- Wilderness - Fires that are not a threat to areas outside the wilderness are allowed to burn naturally provided that prescribed conditions are met. Prescribed conditions to be met are found in Standards and Guidelines specific to wildernesses (MA 1).
- Oak Creek Canyon - The suppression objective is to hold fires to 10 acres or less and minimize threat to life and property when fires are a threat. When fires are not a threat to people or improvements, the suppression objective may be increased to 300 acres. Fires that are not a threat to people and/or improvements are managed to minimize cost and provide for maximum personnel safety. The threat to people and/or improvements is determined by the District Ranger, District FMO, or initial attack Incident Commander.

When fires are reported a determination is made whether the fire is a prescribed fire or a wildfire. Prescribed fires are monitored to assure that they remain in prescription. Wildfires are suppressed using methods that are appropriate to each individual situation.

Strategies and tactics for suppressing a wildfire include the adoption of one or more of the following suppression strategies:

- Confine - Natural barriers or environmental factors limit the spread of the fire. Control lines are not constructed.
- Contain - Control lines are established around the perimeter of a fire and the fire is allowed to burn itself out without additional expenditures for mop up.
- Control - Fire is surrounded by control lines and then mopped up to totally extinguish fire. Control will normally be used during critical fire season.

Program
Components Activities Standards and Guidelines

An implementation schedule for the use of the confine, contain, and control strategies is prepared and implemented in the first year of the decade. The implementation schedule includes delegations of authority to those individuals who will make decisions concerning the use of suppression strategies.

The decision to adopt a suppression strategy other than control will only be made by individuals who have authority delegated to them by the Forest Supervisor.

During fires, make information promptly available to the media. Provide information, photo opportunities, and guides upon request. Government transportation, including helicopters, may be used to transport media representatives as appropriate.

Assign initial attack forces to project work that can be accomplished without impairing their ability to meet the suppression objectives. Priority is given to fire preparedness and fuels management projects that are necessary in order to allow suppression objectives to be met. Project work in other resource areas is allowed provided that dispatch objectives for the fire crew can be met.

Fuel Treatment

The first priority for fuel treatments is to allow and reasonably assist the public to remove available and accessible firewood. Aggressively enlist media support to inform the public about available firewood prior to fuel treatments. Firewood areas are well signed to direct people to them. Road maintenance and management are coordinated to provide access. Burning is generally deferred 2 years to allow for firewood removal.

Plan fuel treatments on an area basis. Fuel treatment objectives are met on the area as a whole and not necessarily on each acre.

Plan fuel treatments that have the least impact on the site, meet resource management needs, are cost effective, and meet fuel treatment objectives.

Snags and downed logs that are necessary to meet wildlife management

objectives for the area are identified and fire lined to protect them. They are also monitored during burning to protect them. T&E and sensitive species are also protected by lining and monitoring. Any unburned islands inside the perimeter of the fire of one-quarter to 2 acres are left unless they are a threat to the management of the fire or prevent achievement of the fuel treatment objectives.

Suppress fires that threaten habitat of threatened and endangered, or sensitive species.

Limit the treatment of natural fuels to areas where fuel buildups are a threat to life, property, adjacent to old-growth areas, or specifically identified high resource values.

Program
Components Activities Standards and Guidelines

Maintain existing fuelbreaks and construct additional fuelbreaks that are necessary for protecting life and property.

Annually review the smoke management implementation schedule and update as needed. Include a quality assurance section in the plan during the first year of the Plan implementation.

Fuel treatment projects include pretreating fuels to meet specified air quality standards and mop-up to control residual smoke, whenever necessary.

Prescriptions for the use of prescribed fire for any purpose include measures to minimize smoke production when projects will impact smoke sensitive areas.

Monitor and document the effects on smoke sensitive areas of smoke from prescribed burning during the burning season. The purpose is to prevent smoke intrusions. Adjust the burning program as needed based upon the monitoring. The initial monitoring will be by aerial observation, photography from observation points, and ground observations. Monitoring may be daily or less frequent depending upon the amount of burning and atmospheric conditions.

Evaluate potential for smoke intrusions on airports, highways, and roads. Employ appropriate measures to provide for public safety by keeping smoke off of these types of facilities to the degree possible. Keep smoke warning signs posted on roads. If an intrusion occurs take cooperative action with appropriate law enforcement personnel to provide for public safety.

Review and make recommendations to the State on air quality and visibility redesignation proposals in the first decade.

Law Enforcement

Cooperative Law Enforcement

Provide law enforcement at a level that protects human health and safety, property, and resource values in coordination with appropriate law enforcement agencies. Train and maintain at least one level IV Law Enforcement Officer per District. Train and maintain enough Level II Officers to meet each District's needs.

Permit only Level II and IV trained Law Enforcement Officers with authorization from the Forest Supervisor to issue violation notices.

Assign only Level IV Law Enforcement Officers to cases involving significant personal risks.

Program
Components Activities Standards and Guidelines

Use public education and cooperation as the primary prevention method. Advertise and maintain a 24-hour contact point for the public to report suspected violations. Make an appropriate response to each public report including feedback to the person making the report.

Use cooperative law enforcement agreements to get assistance from local law enforcement agencies to protect people and property while on the Forest.

Enforce laws firmly, reasonably, and uniformly. Emphasize courteous personal contact. Take action according to FSM 5355 instruction.

Help prevent occupancy trespass and other law violations by patrols, especially in the urban interface.

Work cooperatively with Coconino, Yavapai and Gila Counties and DPS Law Officers to enforce drug laws.

Search and rescue operations are conducted in support of the County Sheriff, or when necessary, initiated and conducted independently.

Forest law enforcement activities are coordinated with other law enforcement agencies.

General Administration

Maintain a low ratio of overhead support to on-the-ground costs. Wherever possible, identify general administration support costs directly to the administration benefiting programs. Any Special Emphasis Program overhead is paid by the benefiting functional program dollars.

Maintain an aggressive and pro-active public affairs program, Forest-wide, to establish and maintain informed consent for resource management objectives.

Respond positively and promptly to media requests for information. Provide guides, photo opportunities, and timely information including video to requesting media. Stories and information developed by the Forest Service are shared equally with all media. Stories developed independently by the media are theirs alone and are not to be randomly shared with other media. Respond positively and promptly to internal requests for information. Provide pictures, articles, fact sheets, news letters, and video to employees to keep them informed and involved in the decision making process.

Be a Super Host to each member of the public.

MANAGEMENT AREA 1

Wilderness

There are 10 wildernesses in this Management Area, each of which is handled separately in some portions of the management prescriptions.

Wet Beaver Wilderness

Analysis Area: 35
Acres: 6,173

Forty miles south of Flagstaff, the Wet Beaver Wilderness commences at its eastern border at the confluence of Brady and Jacks Canyons. Moving west, the boundary follows the canyon rim. In the lower reaches of the canyon, the boundary moves back slightly from the rim to include some of the adjacent plateau. The area ends where Wet Beaver Creek canyon opens towards the Verde Valley. Wet Beaver is a steep walled canyon cutting into the rim of the Colorado Plateau. Supai sandstone and shale form striking red cliffs along the lower canyon.

Wet Beaver Creek is a benchmark of pristine riparian habitats and excellent water quality. The Wilderness is an excellent example of one of Arizona's finest but most rare resources, a perennially flowing stream. It is also a place of solitude and primitive recreation for residents of nearby Flagstaff, Sedona, Cottonwood, Camp Verde, and more distant Phoenix. Opportunities for primitive recreation are further enhanced by the narrow twisting character of the canyon which offers seclusion, even with relatively high use. Portions of the canyon can only be traversed by swimming through deep pools. Two major trails, Apache Maid and Bell Trail, offer easy access to the rim country portions of this Wilderness.

Riparian areas are habitat for a diverse community of plant and animal life. The streambed cottonwoods, sycamore, and ash are unlikely neighbors to the nearby canotia. Maidenhair fern and prickly pear cling to the same canyon wall within a few feet of each other.

The black hawk, a State-listed species, nests here and the area is potential habitat for Arizona bugbane (Cimicifuga arizonica), a candidate species.

Fossil Springs Wilderness

Analysis Area: 36
Acres: 10,436

Sixty miles south of Flagstaff, the Fossil Springs Wilderness encompasses a steep, wide canyon approximately 1,600 feet down at the edge of the Colorado Plateau. The creek is situated in a region dominated by Quaternary basalt laid down over Supai formation. The springs are located on the southern side of the Wilderness, but are not within the Wilderness. See MA 17 for more discussion of the springs, a Botanical Area.

The area contains one of the most diverse riparian areas in the State. Over 30 species of trees and shrubs provide striking contrast to the surrounding Desert Scrub Zone. Trees include mesquite, catclaw acacia, canotia, cacti, ash, walnut, alder, cottonwood, willow, boxelder, with ponderosa pine dominating the higher plateaus. There also is a wide variety of nonwoody plant life. The vegetative diversity creates many wildlife niches for deer, javelina, and 100 species of birds.

Fossil Creek is an important isolated refuge for the Gila roundtailed chub (Gila robusta grahami). The black hawk, a Group II State listed species, is found in this area. The creek is the habitat of the narrow-headed garter snake, known in a small number of localities. Endemic snails have been discovered and as yet are unnamed.

The stream itself is of hydrologic and geologic interest. It will turn blue at times. Geologically there is good exposure above the springs of a scarp of the Colorado Plateau, eroded on Late Paleozoic sedimentary rocks and now buried under extensive Tertiary basalt lava flows.

The area has retained its integrity as an outstandingly clean, pristine site. It has primitive hiking trails and is a good place to find solitude. It is used by big and small game hunters, hikers, and backpackers.

West Clear Creek Wilderness

Analysis Area: 37
Acres: 15,502

Located 10 miles east of Camp Verde, West Clear Creek is one of the most rugged, remote canyons in northern Arizona. The canyon forms where Willow Valley and Clover Creek join near two access trails; the Maxwell Trail and the Tramway Trail. The canyon continues westward for approximately 27 miles, measured along the creek, ending near Bull Pen Ranch. The creek continues westward to join the Verde River south of Camp Verde. The canyon is very narrow for most of its length, with many side canyons.

West Clear Creek Canyon is the longest of the canyons cutting through the Mogollon Rim, the edge of the Colorado Plateau. The formations visible in the canyon area are, from bottom to top, Late Paleozoic sedimentary rocks (Supai, Coconino, Kaibab), Tertiary sediments, and Tertiary basalt lava flows.

Vegetation in the canyon is typical of the Southwest: ponderosa pine at the higher altitudes to the east, replaced by juniper as one moves westward.

The canyon does contain some evidence of human use but the apparent naturalness of the area is unaffected. In spite of the short distance from the northern to the southern boundary, the area offers outstanding opportunities for solitude and primitive recreation by virtue of the very steep canyon walls. A trail starts at the west end of Bull Pen Ranch and follows the north side of the private land and then drops down to the creek eastward for a few miles to climb up the northern slope to the rim. This access is fairly easy, even for inexperienced hikers or for fishermen. There are short steep access trails

that are unmaintained from the rim to the canyon bottom. In the main, narrow part of the canyon, there are no trails. It is necessary to wade or swim in many places when hiking from one end of the canyon to the other so that even the most seasoned hiker will find lots of challenge. The canyon is wild and primitive. Users must plan trips carefully.

The proposed West Clear Creek Research Natural Area (RNA) lies in the western portion of the Wilderness approximately 2 miles above Bull Pen Ranch and covering 1,180 acres. See MA 17 for management Standards and Guidelines for RNA's. Primitive hiking and overnight camping are allowed, based on carrying capacity.

Strawberry Crater Wilderness

Analysis Area: 38
Acres: 10,404

Located 30 minutes north and east of Flagstaff, the Wilderness is gently rolling pinyon-juniper, cinder terrain, about 5,500 to 6,000 feet elevation. The Wilderness contains two areas, separated by a primitive non-system road.

Strawberry Crater is part of the San Francisco Mountain volcanic field, which contains some 600 craters and cones. Strawberry Crater itself is about 50,000 to 100,000 years old. In appearance it is quite different from the younger, rounded cinder cone nearby. The Crater was formed by slow moving basaltic andesite. The ridges of the central Crater show the distinct layering that occurred during eruption. The ridges are broken at right angles to the ground and to one another. The jagged features and deep rust color of Strawberry Crater make it unique among local cinder cones.

The Strawberry Crater area offers the visitor an opportunity to experience the sense of time and endless horizon presented by pinyon-juniper zones. From the low cinder cones, there is a good view of the Painted Desert, the Hopi mesas, and the buttes of the Little Colorado River valley. The area offers opportunities for day hiking, backpacking, and camping. There are a few game animals and small mammals throughout. Opportunities for solitude and for exploring interesting geological and archaeological features exist.

Because of roads along the south and west boundaries and the gentle terrain, ORV tracks and trails are present throughout a major part of the south area. Illegal firewood cutting has also occurred throughout the south portion.

The area contains two sensitive plant species: Penstemon clutei and Phacelia welshii.

Kachina Peaks Wilderness

Analysis Area: 39
Acres: 18,705

Located just north of Flagstaff, the Kachina Peaks Wilderness is part of a large, heavily vegetated composite volcano 7,400 to 12,633 feet high including Humphreys Peak, the highest point in Arizona. The San Francisco Mountains exhibit a rich diversity of past geologic events such as lava flows, volcanic eruptions, glaciation, and erosion. The Mountain is an outstanding example of past volcanic activity and preserve the best example of Ice Age glaciation in Arizona in lateral and medial moraines and former streambeds.

Pioneer ecologist C. Hart Merriam used the Mountain in developing his life zone concept. Of the life zones studied, five exist on the Mountain, Alpine Tundra, Timberline, Hudsonian (spruce-fir), Canadian (Douglas-fir), and Transition (ponderosa pine). The only Alpine tundra vegetation in the State is found on the Mountain in a fragile 2-square-mile zone and contains a threatened plant: *Senecio franciscanus*. The Mountain contains large tracts of virgin spruce-fir forests and have the only area of bristlecone pine in Arizona.

There is great diversity of resident wildlife species, including mule deer, elk, turkey, black bear, coyote, mountain lion, red squirrel, and Clark's nutcracker.

Several roads, jeep trails and hiking/equestrian trails provide access to, and within, this unit. Recreational opportunities include day hiking, backpacking, cross-country skiing, snowshoeing, winter camping, snow and ice climbing, small and big game hunting, bird watching, and leaf watching (fall). Hundreds of people hike to the top peaks each year to sample the outstanding views of the Painted Desert, the North Rim of Grand Canyon, and Sunset Crater.

The Mountain is sacred to several western Indian tribes including the Hopi and Navajo. A number of religious shrines have been documented. These shrines have historic and religious value and are currently used by the Hopi and Navajo.

The San Francisco Peaks RNA, a bristlecone pine/tundra/old-growth spruce-fir community, is in the Wilderness. The RNA was established in 1931 and contains 1010 acres. There is a proposed addition in a large stand of bristlecone pine of 282 acres. See MA 17 for management Standards and Guidelines for RNA's. Primitive hiking and camping are allowed based on determined carrying capacity.

The C. Hart Merriam Scenic Area of 275 acres was designated in 1966. Designation of the Kachina Peaks Wilderness superceded the need for this classification, as protection of the visual quality objectives and management for primitive recreation are provided by law.

Kendrick Mountain Wilderness

Analysis Area: 40
Acres: 2,450

The Kaibab National Forest led the planning effort for the Kendrick Mountain Wilderness. Specific prescriptions for management are included within the Kaibab Forest Plan.

Located 19 miles northwest of Flagstaff, Kendrick Mountain is a heavily vegetated volcanic dome. Outstanding examples of volcanic structures are the largest volcanic dome in the San Francisco volcanic field and rock glaciers.

Kendrick contains a great diversity of ecosystems and their associated wildlife. The area is an important elk summer range, and is an important site for the study of Arizona ecosystems.

Kendrick's steep topography and dense vegetation offers outstanding opportunities for primitive and unconfined activities. These include hiking, backpacking, small and big game hunting, horseback riding, photography, and nature watching. Several hiking trails exist, including one that climbs to the summit. There are outstanding views of the San Francisco Mountain and the North Rim of Grand Canyon National Park.

Red Rock-Secret Mountain Wilderness

Analysis Area: 41
Acres: 47,581

Located twenty miles south of Flagstaff, the Red Rock-Secret Mountain Wilderness includes spectacular red, tan, and buff cliffs that mark the edge of the Colorado Plateau. The country plunges as much as 2,500 feet into canyons that drain into Oak Creek and the Verde River. Secret Mountain and Wilson Mountain are high mesas jutting out into the lower country. Several lava flows cap the high rims of Tertiary, Triassic, Permian, Pennsylvanian, and Mississippian exposures. The area includes the dramatic backdrops and scenic cliffs that make Sedona a popular tourist spot.

This is an area of great climatic variation. The high rims are cool and moist most of the year, except for May and June. The south end of the wilderness, near Sedona, has a much warmer climate. Mid-winter temperatures average above freezing. Annual precipitation is above normal for the State. There are eight major plant communities: ponderosa pine; fir; chaparral; pinyon-juniper woodland; evergreen oak woodland; Arizona cypress woodland; upper and lower riparian; and desert grassland. The wide variety of vegetative types provide habitat for equally diverse wildlife populations. There are at least 250 species of vertebrates in the area including elk, mule, and white tail deer,

javelina, coyote, rabbit, mountain lion, and bear. Of these, 60 percent depend on the riparian habitat during at least part of their life cycles. Bugbane (*Cimicifuga arizonica*) occurs here and has been nominated for classification as a threatened species. The area has a very high rating as potential peregrine falcon habitat.

Aside from the few species that are officially recognized as being rare or threatened, the area is very interesting to biologists as it represents the northern and southern limits of many species. For example, some 32 species of ferns occur in the canyons and on the slopes. At least three species reach their northern limits here and at least three others reach their southern limits here. There are also a number of habitat types representing unique combinations of plants, animals, and environments.

There are archaeological sites scattered throughout. One or two are particularly striking. This area has been relatively little studied but is particularly interesting to archaeologists because the normally agricultural Sinagua apparently were forced to go to a hunting and gathering economy in the area because of a lack of agricultural land. The Wilderness offers outstanding solitude because of topography and vegetation. Opportunities for primitive recreation are many.

The West Fork of Oak Creek RNA, a willow/boxelder community is in the Wilderness and includes a riparian area and the adjacent canyon walls. The RNA was established in 1931 and includes **1,853** acres. See MA 17 for management Standards and Guidelines for RNA's. Primitive hiking is allowed, but overnight camping is prohibited.

Munds Mountain Wilderness

Analysis Area: 42
Acres: 18,100

Elevations in the Wilderness range from 3,600 to 6,800 feet. Located east of Sedona, the area is characterized by the moderate to steep slopes of the Mogollon Rim. Rattlesnake, Woods, and Upper Jacks Canyon are the major drainages. Munds Mountain, Lee Mountain, and Horse Mesa are the areas of highest elevation.

Munds and Lee Mountains are unique geologic areas of the Mogollon Rim. There are extensive outcroppings of Coconino and Supai sandstone on the cliff faces of Munds and Lee Mountains, and ramp basalt flows.

A great diversity of vegetation and wildlife species and outstanding riparian habitat characterize the upper Woods Canyon. Depending upon slope and aspect, several vegetation communities are found, including desert sagebrush, desert grass and short grass plains, oak brush, chaparral, oak woodland, pinyon-juniper, and woodland types of the lower and upper Sonoran Zones. There is a small portion of ponderosa pine. Riparian vegetation is found in the major drainages.

The deep drainages and rugged nature of the terrain offer many opportunities for primitive and unconfined activities including hiking, backpacking, horseback riding, swimming, rock climbing, bird watching, and hunting. Due to the striking beauty of the red cliffs and riparian habitat, the Wilderness also offers outstanding opportunities for photography and painting.

This unit contains many prehistoric Indian sites.

Mazatzal Wilderness

Analysis Area: 43
Acres: 2,589 - Coconino National Forest

The ponderosa pine vegetative type is the Forest's largest commercial timber zone. The ponderosa pine stand blanketing the Mogollon Rim is part of the largest contiguous ponderosa pine stand in the world. There are three major vegetation associations that occur in this Management Area:

Forming part of the northern boundary of the 251,900 acre Mazatzal Wilderness, the area provides unique contrasts between the streamside environments and surrounding high desert as well as desert grassland and chaparral vegetation. There are culturally significant archaeological sites. The area has carved out a deep rugged canyon with attendant riparian habitat and supporting a wealth of wildlife and vegetation. The Verde Wild and Scenic River bisects the bulk of the area and is extremely valuable as riparian habitat for a number of species.

The general remoteness and rugged terrain offer a wealth of opportunities for hiking, fishing, river running, archaeological site viewing, bird watching, and photography. The area presently receives very little visitation other than hunting and hiking. There are a number of continuing activities in the area including reintroducing of river otters, enhancing nesting eagle habitat, viewing prehistoric sites, and river running opportunities. The area abounds in wildlife, supporting southern bald eagles, golden eagles, river otters, beaver, javelina, deer, bear, waterfowl, kit fox, and many other native Sonoran species. The relatively proximity to the populous Phoenix metropolitan area ensures that the area will receive increased use.

Management prescriptions for the Mazatzal Wilderness are contained within the Tonto National Forest Plan.

Sycamore Canyon Wilderness

Analysis Areas: 44, 45, 46
Acres: 44 - 23,970 - Coconino 45, 46 - 28,884 – Prescott, Kaibab 52,854-Total

The Coconino portion of this Wilderness covers the eastern side of Sycamore Creek up to the rim. The southern portion of the area is a series of broad mesas with gently sloping drainages tributary to the Verde River. Along the Verde there is extensive riparian habitat. The northern section is a series of foothills and canyons that rise to a 300-foot rim of rugged sandstone outcrops along Sycamore Canyon. Elevation ranges from 3,700 to 6,500 feet. These differences in elevation and aspect throughout the canyon result in a variety of contrasting ecological associations, set in spectacular "red rock" geologic formations. Vegetation in the canyon varies from mixed conifer and ponderosa pine in the upper reaches,

to chaparral and woodland in the lower portions. The stream course is a hardwood complex, riparian vegetative type.

Wildlife species include quail and javelina in the lower canyon and elk in the upper reaches.

Management Emphasis

Emphasize wilderness recreation and watershed condition while maintaining wilderness resource values. In order to accomplish this, some additional trail and trailhead development will be done, particularly in the Kachina Peaks, Red Rock-Secret Mountain, West Clear Creek, and Munds Mountain Wildernesses.

Highlights include:

- Manage Visual Quality Objective (VQO) in wilderness as Preservation. No variation in this acreage is acceptable.
- Manage for a mix of Wilderness Opportunity Spectrum (WOS) classes with some areas, for example Fossil Springs and portions of Red Rock-Secret Mountain managed toward the primitive end of the WOS spectrum. Wildernesses are managed to maintain wilderness quality and to maintain use within capacity, with first priority for management efforts to the Kachina Peaks Wilderness. Where overuse problems are apparent or imminent, such as some WOS classes in Kachina Peaks, Red Rock/Secret Mountain, Wet Beaver, West Clear Creek, and Sycamore Canyon, use studies are undertaken and remedial action implemented to protect the resource. The study currently underway in the Kachina Peaks is continued and similar studies are undertaken in other areas. Possible corrective measures include the initiation of permit systems or seasonal closure of sensitive areas.
- Manage to provide a quality experience for people while protecting wilderness resources. It may be necessary to limit numbers of people and/or horses and packstock in some instances. The majority of use in all areas is day use.
- Manage grazing under Congressional guidelines for grazing in wilderness. Livestock grazing presently occurs in portions of all the wildernesses except Strawberry Crater.

Recreation Planning and Inventory

Recreation

Prepare establishment reports for West Clear Creek Research Natural Area and expansion of San Francisco Peaks Research Natural Areas during the first half of the decade. See MA 17 for Standards and Guidelines for RNA's. Declassify the C. Hart Merriam Scenic Area within the Kachina Peaks Wilderness. Wilderness Management direction provides stronger protection for the scenic values than the original classification.

Wilderness Planning and Inventory

Wilderness

Prepare and publish brochures for each wilderness in the first decade to be reviewed annually and updated as needed.

Prepare wilderness implementation schedules for each wilderness during the first decade.

Enforce provisions of 36 CFR, part 261 and Title 18 U.S.C. regarding prohibitions in wilderness.

Implement "NO TRACE" program, providing educational information to users.

Manage wildernesses so that the current net balance of WOS classes is changed no more than ±15 percent in the first decade.

WOS Class	Percent of Net Forest Acres
Pristine	**17%**
Primitive	**49%**
Semi-primitive	**20%**
Transition	**14%**

Use the Limits of Acceptable Change (LAC) concept for establishing objectives, standards, and monitoring levels for wildernesses, as outlined in FSM 2320.

Locate the wilderness boundaries and post them as needed in the first decade to prevent unauthorized intrusions. Close existing roads in the first decade to prevent intrusions.

Develop Wilderness Information Specialist (WIS) program Forest-wide. The WIS volunteers meet the public at wilderness trailheads or in wildernesses to provide information about each area, and patrol each area to pick up garbage and to help visitors.

Determine outfitter-guide needs for each wilderness during the first decade. Coordinate with AGFD for those providing wildlife recreation opportunities.

Program
Components Activities Standards and Guidelines

Implement corrective measures such as a wilderness permit system if overuse causes unacceptable resource damage. Overuse is determined from:

- Limits of Acceptable Change (LAC) studies
- Range analyses
- Code-a-site inventories
- Professional judgment

The Kachina Peaks, Red Rock-Secret Mountain, Wet Beaver, West Clear Creek, and Sycamore Canyon Wildernesses are closely monitored to determine whether or not corrective measures are needed in the first two decades.

Wildernesses are open to horse use unless specifically restricted.

Bicycles are not allowed in wildernesses.

Wilderness-specific Guidelines:

Standards and Guidelines for the Kendrick and Mazatzal Wilderness are in the Kaibab and Tonto Forest Plans, respectively.

Provide regular Wilderness Ranger patrol in wildernesses to the degree necessary to meet the standards for each area. If funding is limited, use volunteers to accomplish as much of this work as possible via the WIS program. Standard level trail maintenance is defined in the implementation schedules for each wilderness.

Wet Beaver

- Maintain the current WOS classes.
- Acquire legal access for a trail through private land in the first decade.
- Improve trailhead at Beaver Creek Ranger Station.

, Fossil Springs

- Maintain the current WOS classes.
- No new trail construction.

, West Clear Creek

- Maintain the current WOS classes.
- Acquire legal access at Bull Pen Ranch or by-pass with a trail.
- Develop trailheads at Bull Pen Ranch, in the first decade, and Maxwell, Tramway, and Cedar Flat in the second decade.
- Prepare establishment report for West Clear Creek RNA in the first decade.

Program
Components Activities Standards and Guidelines

Strawberry Crater

- Maintain the current WOS classes, except for changes due to trail construction.
- Construct trail to northeast side of Strawberry Crater.
- Stop motorized vehicle intrusions and firewood cutting.
- Close road between north and south pieces of the Wilderness through physical and administrative closure by the end of FY 88.

Kachina Peaks

- Consult with Native Americans on projects.
- Change is allowed in WOS classes to accommodate trail development.
- Construct a trail around the Mountain that links existing and proposed trailheads in the first decade.
- Construct trailheads at Bismarck Lake, Snow Bowl, Abineau Canyon, Lockett Meadow, Schultz Pass, and Freidlein Prairie by the end of the second decade. Locate, plan, construct, and manage in a manner that protects other resource values.
- Foot traffic only on the Humphreys Peak Trail and from Humphreys Peak to Doyle Saddle along the ridge.
- No horse or packstock use above timberline.
- No overnight camping above timberline.
- Use in the City of Flagstaff watershed (draining into Inner Basin) is limited to day-use foot traffic. The area may be closed if unacceptable damage occurs as determined by a degradation of water quality.
- Protect *Senecio franciscanus* by an area closure.
- Prepare establishment report for San Francisco Peaks RNA addition in the first decade. In the interim, manage the area to preserve the suitability for designation.
- Declassify C. Hart Merriam Scenic Area in the first decade.

Red Rock/Secret Mountain

Munds Mountain

New direction is contained on the following pages. Refer to pages 108-1 through 108-4.

Wilderness (MA 1)

This portion of MA 1 management direction includes information for Munds Mountain, Red Rock-Secret Mountain and a portion of the Sycamore Wilderness. This revised direction was the result of the analysis for the Sedona/Oak Creek Planning Area. The information in Amendment 12 supersedes any conflicting direction within the remainder of MA 1 for these Wildernesses.

Management Emphasis

Ecosystem processes, such as fire, play a natural role.

People experience solitude, natural quiet, self discovery and self reliance.

PLANTS, WILDLIFE, SOIL, AIR AND WATER

Objectives

1. Fire, under prescribed conditions, is allowed to play a natural role. Fire management strategies are prepared and implemented for all Wildernesses.
2. Native fish habitat exists and functions within the West Fork of Oak Creek. Angling opportunities are available.

SCENERY

Objectives

1. Visitors see a landscape in which the visible effects of recent human activity are nonexistent or rare.

Guidelines

1. Limit signing in Wilderness to those that are essential for resource protection and user safety.
2. Facilities are rare and are constructed of rough-hewn native materials.

RECREATION

Goals

1. Pristine and Primitive WOS/ROS settings predominate.
2. Feature opportunities for restorative experiences and benefits.
3. Uses adjacent to Wilderness do not compromise Wilderness values.

Objectives

1. Manage as prescribed by Congress for Primitive attributes. Several inconsistencies exist, such as at Bell Rock, West Fork, Boynton Canyon and some places near private land. Make every effort to limit the degradation of Wilderness values. Where needed, take management actions in these places beyond levels normally associated with Wilderness management in order to protect visitor experience and resources. Near Secret Mountain and adjacent canyons, Sycamore Basin, upper Woods Canyon and portions of Jack's Canyon and Horse Mesa, the objective is a Pristine WOS setting.
2. Use popular places such as Bell Rock, Boynton Canyon and West Fork as opportunities to inform visitors about Wilderness.
3. Limit camping and recreation fires at or near trailheads and private lands as needed to protect resources, resident security and sanitation.
4. Establish key Wilderness trailheads with sanitation, orientation and interpretation.
5. Expand opportunities for Wilderness day hiking by creating loop hikes. Explore the feasibility of constructing a trail connection from Slide Rock State Park to the Sterling Pass Trail.
6. Evaluate the need for additional limitations on visitor use at Boynton Canyon and the West Fork of Oak Creek.
7. Consolidate the numerous trails up West Fork to one primary trail located in a way that avoids impacts on sensitive species. Keep creek crossings to a minimum when designating the trail route.
8. Designate camp areas in West Fork consistent with protection of threatened, endangered and sensitive species.
9. Discourage bicycles in Wilderness through such methods as ranger patrols, placement of bike racks near Wilderness boundaries, ``Wilderness ahead'' signs located outside of the Wilderness, improved trail design and expanded trail opportunities outside of the Wilderness.
10. Implement a Wilderness permit system for Red Rock-Secret Mountain Wilderness that will permit both day and overnight use.
11. Narrow the trail width of old 4x4 roads at Dry Creek, Secret Canyon, Devils Bridge, Margs Draw, Long Canyon, Vultee Arch, Doggie and Mooney Trails in order to improve the Wilderness experience.

12. Obtain a permanent easement for the Margs Draw Trailhead Wilderness access.
13. Rehabilitate damaged Wilderness sites, including West Fork, Bell Rock, Sycamore Pass, Sedona's north and east urban interface, Margs Draw and Boynton Canyon.
14. Update Wilderness Implementation Schedules to reflect Forest Plan objectives. Use the Wilderness Opportunity Spectrum as a tool to describe recreation goals.

Standards

1. Camping and recreation fires are prohibited in Boynton Canyon.
2. Visitor travel in Boynton Canyon is allowed only on designated trails or by special use permit.
3. Camping is prohibited throughout the West Fork of Oak Creek, except in designated campsites. Recreation fires in the West Fork of Oak Creek are prohibited.
4. **In wilderness group size limit is generally 12 or fewer persons.**

Guidelines

1. Allow wheelchairs suitable for outdoor use but do not make special accommodations for wheelchairs in Wilderness. Encourage alternate transportation methods, such as horseback riding, that are appropriate to the Wilderness setting.
2. For the West Fork of Oak Creek Canyon establish a reservation only permit system for overnight camping. This system should include the following: no camping within 2.5 miles of the confluence, no more than 5 camping areas, each camping are to accommodate 2-4 camping parties, camping party size to be generally 4 persons, camp areas to be located outside of spotted owl protected activity centers where possible, and total annual overnight use to be maintained at or less than 1997 use (approximately 1,300 persons).
3. Monitor human use in West Fork Canyon including length of stay, number of visitors, travel routes, time of visit, and party size.

COMMERCIAL USES

Objectives

1. Continue to support Wilderness-dependent recreation opportunities such as backpacking, horse packing and hunter guiding where these activities are consistent with resource and WOS/ROS objectives.

Guidelines

1. Commercial tour activities should be limited to trails and campsites designated for such use.
2. Commercial tours will be limited to Wilderness-dependent opportunities that cannot occur outside of Wilderness. enerally maintain or reduce current levels of commercial touring in Wildernesses.

INTERPRETATION AND COMMUNICATION

Objectives

1. Encourage widespread understanding of the philosophy of Wilderness and support for its natural and social benefits. People should be prepared with appropriate equipment and information. Visitors should learn about sensitive ecological features, know their responsibility and act in a way that protects ecological systems.
2. Expand partnerships such as the resort Wilderness Ranger Program to increase awareness of Wilderness values and etiquette.
3. Increase residents' awareness of the Wilderness near them by providing them with information about Wilderness.
4. Provide education and information at all Wilderness trailhead access points. This should include information about the variety of trails and experiences available in the Munds Mountain, Red Rock-Secret Mountain, and Sycamore Canyon Wildernesses and information about personal safety leave-no-trace etiquette and pertinent regulations.
5. Place major emphasis on interpretation about Wilderness at popular access points, such as Boynton Canyon, Bell Rock, West Fork and Dry Creek Road.

Program
Components Activities Standards and Guidelines

Sycamore Canyon

- Maintain existing WOS classes, except for changes d to trail construction or reconstruction.
- Evaluate the need for a trail from the vicinity of White Horse Lake to and along the bottom of Sycamore Canyon as a part of the wilderness implementation schedule. If included, construct with volunteers during the first decade.
- Improve road access to trailheads.
- Protect/preserve Taylor Cabin by regular patrol.

Wilderness--Standard Level Management (SLM)

Standard level management meets Forest Plan objectives. The intensity of management varies according to the specific objectives and WOS class.

The following is a general description of SLM in the Kachina Peaks, south side of Red Rock-Secret Mountain, South end of Sycamore Canyon, west end of West Clear Creek, and the west end of Wet Beaver Wildernesses.

Develop and implement implementation schedules with annual updates. Develop a brochure for each wilderness, including a trail map. Administer a permit system, if one is implemented. Maintain all wilderness facilities to Condition Class I. Provide parking and toilet facilities at major trailheads. Install traffic counters at all trail heads. Implement WIS program. The goal is to protect wilderness values and provide a quality wilderness experience. Use volunteers as much as possible, particularly during peak season to patrol, pick up litter, break up fire rings, restore damaged sites, contact the public, and maintain trail condition logs.

The following is a general description of management in the Fossil Springs, Munds Mountain, Strawberry Crater, east end of West Clear Creek, east end of Wet Beaver, north portion of Sycamore Canyon, and the north side of Red Rock-Secret Mountain Wildernesses.

Use volunteers as much as possible, particularly during peak season to patrol, pick up litter, break up fire rings, restore damaged sites, contact the public, and maintain trail condition logs. Service trail heads as necessary. Public safety and resource protection are emphasized. When permanent damage to the resource is apparent or imminent, measures are taken to both limit and distribute visitor use in wilderness by permit system or other methods. Maintain facilities and signs to protect the investment only.

Program Components	**Activities**	**Standards and Guidelines**
		Nonstructural Wildlife Habitat Improvements, T&E Species
Wildlife		Protect 325 acres of alpine areas on the San Francisco Mountains to improve habitat for *Senecio franciscanus* by closing the area during snow-free periods. Access is limited to designated trails.
		Range Resource Planning and Inventory
Range		Wildernesses are open to grazing. Strawberry Crater Wilderness has no grazing capacity assigned to it and is managed at Level A. The tundra and upper mixed conifer/spruce-fir slopes within the Kachina Peaks Wilderness are closed to grazing and are not part of any grazing allotment. Other wildernesses have a total of 77,426 acres of full capacity lands. Of the total acres, 2,710 acres are in less than satisfactory condition. Less than satisfactory range conditions are improved by completion of the development program contained in the AMP.
		Grazing management in wilderness is in accordance with FSM 2300 and Conference Report S.2009 (H.R. No. 96-1126).
		Grazing management is generally at Level C.
		Permits for grazing in wildernesses are issued only in areas where grazing was established at the time of wilderness designation.
		Any adjustments in the numbers of livestock permitted to graze in wildernesses will be made as a result of revisions in the normal grazing and land management planning and policy setting process, giving consideration to legal mandates, range condition, and protection of the range resource from deterioration. It is anticipated that the numbers of livestock permitted to graze in wilderness would remain at the approximate levels existing at the time an area enters the wilderness system. If studies reveal conclusively that increased livestock numbers or animal unit months (AUM's) could be made available with no adverse impact on wilderness values, such as plant communities, primitive recreation, and wildlife populations or habitat, some increase in AUM's may be permissible (Conference Report S.2009 (H.R. No. 96-1126)). By the same token, if it is discovered that present livestock numbers have an adverse impact on wilderness values, some decrease in AUM's may be necessary.
		Range Structural Improvements
		New structural improvements and maintenance and replacement of existing improvements are considered in the overall context of the purpose and direction of the Wilderness Act and evaluated through practical, reasonable, and uniform application of the "Grazing in National Forest Wilderness Areas" committee guidelines.

Program Components	**Activities**	**Standards and Guidelines**
		New structural range improvements deemed necessary for proper management and/or protection of the wilderness resource must be approved by the Forest Supervisor.
		Motorized equipment to transport, install, or maintain range improvements, or for use in conducting the necessary management practices associated with the grazing operation must be approved by the Regional Forester.
		Integrated Stand Management
Timber		Consider wilderness acres in meeting some wildlife habitat objectives in 10K Blocks. See MA 3 Standards and Guidelines for applicable management direction.
		Air Quality
Air		Review Prevention of Significant Deterioration (PSD) permit applications to determine the potential effect increased emissions from major stationary sources will have on air quality related values (AQRV's) in National Forest Class I areas. Protect the current status of AQRV's in the Sycamore Canyon Wilderness Class I Airshed. Treat other wildernesses in the same manner as Class I Airsheds. Predict the impacts of air pollution generating activities with current and cost effective modeling techniques.
		Monitor specific air pollutant and meteorological parameters necessary for determining air quality in Class I areas.
		In the Class I Airsheds, maintain high quality visual conditions. The form, line, texture, and color of characteristic landscapes is clearly distinguishable when viewed as middleground. Cultural resources and ecosystems remain unmodified by air pollutants. Determine baseline information and the background condition of the above AQRV's, and specify limits of acceptable change that will affirmatively protect these values in Class I Airsheds.
		Water Rights
		Evaluate the need in the first decade to file for reserved water rights under the Wilderness Act.
		Fire Management Planning and Analysis
Protection		Fire under prescribed conditions is allowed to play a natural role in wilderness.
		Implementation schedules are prepared and implemented for all wildernesses by December 1990.
		Fires that are not a threat to areas outside the wilderness are allowed to run their natural course provided that the following prescribed conditions and situations are met: ➢ Fuel levels permit a sound natural fire program to be implemented. ➢ Fire forces are available in sufficient numbers to contain the fire(s) during the period between the afternoon fire weather forecast and 10 a.m. the next day.

Program
Components Activities Standards and Guidelines

Fires that are not a threat to areas outside the wilderness are allowed to run their natural course provided that the following prescribed conditions and situations are met:

- Fuel levels permit a sound natural fire program to be implemented.
- Fire forces are available in sufficient numbers to contain the fire(s) during the period between the afternoon fire weather forecast and 10 a.m. the next day.
- Fire behavior, both existing and predicted is such that fire forces are expected to be able to stop the spread of the fire(s) in any direction.
- Fuels in the path of the fire(s) are of an amount, size, and arrangement that expected fire intensity will not cause unacceptable damage to the wilderness resource.
- The fire creates a mosaic vegetation pattern. Fires outside of these limits are unacceptable. The following ratio of burned to unburned acres are achieved:

% Burned	% Unburned
25 to 75	75 to 25

- Fires that do not meet prescribed conditions are declared wildfires and suppressed in accordance with the following general suppression objectives. More specific suppression objectives for portions of the wildernesses may be developed as a part of the implementation schedules.
- Kachina Peaks--10 acres; Kendrick Mountain--10 acres; Strawberry Crater--300 acres; Red Rock-Secret Mountain--300 acres; Munds Mountain--300 acres; West Clear Creek--300 acres; Wet Beaver Creek--300 acres; Fossil Springs--300 acres; Sycamore Canyon--1,000 acres;
- In areas where unnatural fuel buildups have occurred because of the suppression of natural fires, prescribed fire using planned ignitions is used to restore a natural fuel condition so that fire can be allowed to play a natural role.

Fires that exceed prescription are suppressed using tactics that minimize impact on wildernesses.

Fires or portions of fires that threaten to or do cross out of the wilderness are managed under fire management direction for the area outside the wilderness.

Fires in the RNA's are allowed to burn undisturbed unless they threaten the uniqueness of the area.

Verde Wild and Scenic River - Management Area 2

Analysis Area: 34
Acres: **2,888**

The Verde Wild and Scenic River was designated by the Arizona Wilderness Act of 1984, Public Law 98-406, on August 28, 1984. Beginning at the most southern point of the Forest, the confluence of the Verde River and Fossil Creek, the Wild and Scenic River stretches northward approximately 22 miles to a parcel of private land south of Camp Verde. The Wild and Scenic River designation applies to both sides of the river and generally totals one-half mile wide, one quarter mile on each side of the river. The area overlaps with a portion of the Mazatzal Wilderness.

Increased use of the Verde Wild and Scenic River is expected to occur as it is the only such designated river in Arizona. The Arizona Wilderness Act, 1984, specified that the designation would not prevent water users receiving Central Arizona Project water allocations from diverting the water through an exchange agreement with downstream water users in accordance with Arizona water law. Streamflows could be reduced in the future.

A Comprehensive River Management Plan (CRMP) has been completed for the Verde Wild and Scenic River. The CRMP establishes a comprehensive approach to managing the free-flowing natural character of the river and its outstandingly remarkable values. The CRMP also provides detailed direction, management standards, implementation actions, and monitoring that will be applied to protect and enhance river values. The CRMP is the result of a coordinated effort of three National Forests, Tonto, Prescott, and Coconino, along with many other Federal, State, and local agencies, as well as concerned citizens, to identify a plan for protection and use of the river.

Each of the Forest Plans for the three Nationals Forest has been amended to reflect the CRMP direction. Due to the low levels of development present along the Verde River at the time of its designation, the Arizona Wilderness Act (P.L. 98-406) divided the river into a Wild segment and a Scenic segment. There is no Recreational designation along the Verde River. The Scenic River Area begins near Beasley Flat, continues downstream about 18.8 miles to the boundary of the Mazatzal Wilderness. The Wild River Area lies within the Mazatzal Wilderness, beginning at the Wilderness boundary and continuing downstream about 22.2 miles to the confluence of Red Creek on the Tonto National Forest.

Management Emphasis

Maintain the Wild & Scenic River outstandingly remarkable values (ORV's) for scenic, fish, wildlife, and historic and cultural values, while also protecting the river's free-flowing character. The CRMP describes in further detail the Wild and Scenic Rivers legislation and the details of the ORV's for this River. The Act also requires that the

Wild & Scenic River must first be administered in such a manner as to protect and enhance the river's values, and second to allow other uses that do not interfere with public use and enjoyment of those river values. Protection and enhancement of the specific outstandingly remarkable values and water quality within the VWSR provides the foundation upon which all management actions and authorizations of uses are based. The following is an excerpt from the CRMP summarizing those values.

- Scenery - The Verde River has outstandingly remarkable scenic values. The scenic qualities of landform, vegetation, and water within the Verde Wild and Scenic River are distinctive. Landform varies from steep, rocky canyons framing the river, to plateaus dropping to wide flood plains, with the river as a central feature. Vegetation varies according to terrain, from broad mesquite bosques and cottonwood gallery forests to narrow bands of riparian willows, in contrast to the surrounding dry grassland and desert vegetation. Scenic qualities of the perennial Verde River change dramatically with the seasons and with changes in river flow. Dramatic fall color contrasts with summer greenery. Water flow changes from shallow, still pools and slow water, to high flow, seasonal rapids, and waterfalls. Recreationists view the river corridor from the high edges of plateaus and canyons, from within the floodplain, from the riverbank, and from the surface of the river itself. The VWSR area is visually sensitive due to the combination of high viewer expectations, generally long duration of view, and high amount of detail visible by the viewer. The river corridor is characterized in many locations by open, expansive vistas viewed from numerous locations.
- Fish - Outstandingly remarkable fish values along the Verde Wild & Scenic River (VWSR) results from the high quality habitat that the river provides for native fish species, including several federally endangered and threatened listed species and their critical habitats. Periodic natural flooding, a diversity of aquatic habitats, and a native fish assemblage make the VWSR a unique and valuable resource in the Southwest. Historically, the native fish assemblage in the Verde River was comprised of razorback sucker, Colorado pikeminnow, spikedace, loach minnow, Sonora sucker, desert sucker, roundtail chub, speckled dace, and longfin dace. Three of these fish species, the razorback sucker, Colorado pikeminnow, and the loach minnow were extirpated from the Verde River basin. The current native fish assemblage found within the VWSR is comprised of the Sonora sucker, desert sucker, the reintroduced razorback sucker and Colorado pikeminnow, and the occasional roundtail chub. The longfin dace and speckled dace are common in tributaries to the VWSR, and only briefly occupy the mainstem after downstream displacement from the tributaries due to flooding. Generally, native species comprise less than twenty percent of the fish community in the VWSR reach of the Verde River. The only notable exception was in 1995 when high reproduction and recruitment of desert and Sonora suckers into the fish community was documented due to spring flooding providing suitable spawning conditions.

  Currently, federally listed fish species in the VWSR include the razorback sucker (endangered), Colorado pikeminnow (experimental nonessential), and the roundtail chub (Forest Service sensitive). There is also designated critical habitat for the razorback sucker throughout the reach of the VWSR, and for the spikedace and loach minnow from Beasley Flat to the Fossil Creek confluence. The AGFD began reintroductions of razorback sucker and Colorado pikeminnow into the Verde River in 1981 and 1985, respectively. Since 1994, the VWSR has been the focal area of the recovery program in Arizona with annual goals to stock 2,000 large individuals of each species.

The introduced, nonnative fish assemblage found in the VWSR includes common carp, channel catfish, flathead catfish, smallmouth bass, largemouth bass, green sunfish, red shiner, and mosquitofish.

- Wildlife - Outstandingly remarkable wildlife values along the Verde Wild & Scenic River result from the high quality habitat that the river and its associated riparian areas provide. The VWSR provides habitat for a diverse array of wildlife species and contains some of the most important riparian and associated upland habitat found in Arizona and the Southwest. A number of factors combine to make this area extremely critical for riparian-dependent species, as well as terrestrial wildlife in general. The River's combination of location and orientation provides a ribbon of riparian habitat suitable for birds that seasonally migrate through or inhabit these life zones. It also provides wintering habitat for waterfowl and year-round riparian and associated upland habitat for resident species. Finally, it provides a source of water and aquatic habitat that supports a diverse array of species in an otherwise arid environment.
- Currently, there are 50 threatened, endangered, sensitive or special status wildlife species present or potentially present within the River corridor. The corridor contains important nesting habitat for the bald eagle and potential and suitable habitat for the southwestern willow flycatcher, western yellow-billed cuckoo, and Yuma clapper rail. It is home to a thriving population of river otters and beaver. It is a summer home to many riparian-dependent, neotropical migrant birds. In addition, the River and its riparian area provides habitat for over 60% of the vertebrate species that inhabit the Coconino, Prescott, and Tonto National Forests. The high variety of both resident and migratory wildlife species found in the River corridor illustrates the corridor's value for these species within Arizona and the Southwest. Riparian vegetation quality and quantity ultimately determines the number of wildlife species, the population of each species, and sustainability of these levels of the outstandingly remarkable wildlife resource of the VWSR. Willows are a principal vegetation component, but velvet ash, Arizona sycamore, and Fremont cottonwood are also important. Although the river and floodplain seem large, less than 30% of the valley bottom has wetter soils capable of supporting lush riparian vegetation communities. Because most of the wildlife found within the VWSR is dependent on riparian vegetation for their livelihood, the restricted distribution and limited acreages only increase the importance of this habitat to the wildlife.
- Historic and Cultural - The Verde Wild and Scenic River corridor is known to contain archaeological evidence of the occupation and agricultural use and modification of the Verde River floodplains, terraces, and hill slopes by people from prehistoric to modern times. There is evidence of the occupation of people related to the prehistoric Hohokam and Southern Sinagua cultural traditions over a period of at least 600 years and there may be sites from as long ago as 8,000 to 10,000 years. The River corridor is also expected to contain a number of pre-European contact and historic sites reflecting its use and occupation by Yavapai and Apache hunters, gatherers, and farmers. It is known to have sites representing the Anglo, Hispanic, and Basque stockmen who raised or drove cattle and sheep throughout the area. The earliest hydroelectric power plant in the State of Arizona is located in the VWSR corridor at the small settlement of Childs, still occupied and functional. The significance of the Childs power plant has already been recognized by its listing in the National Register of Historic Places. The VWSR corridor also contains the burned out remains of one of Arizona's first tourist developments, the Verde Hot Springs Resort across the river from Childs.

- Manage for the following indicator species:
  - Macroinvertebrates
  - Yellow breasted chat

Highlights from the establishing legislation:

All management activities in and near the river corridor shall be administered in such a manner as to protect and/or enhance the identified outstandingly remarkable values for the Verde Wild & Scenic River (PL 90-542, Wild & Scenic Rivers Act, 1968, as amended, Section 10(a) and Section 12(a)).

The free-flowing characteristics of the river shall be protected (PL 90-542, Section 1(b)).

River characteristics necessary to support the existing classifications of Wild or Scenic shall be protected during all management activities (47 CFR 173, 9/82) (PL 90-542, Section 2(b)(1 and 2)).

Water resource development projects, either within the designated river corridor or adjacent to it, which would have a direct and adverse effect on the values of the Verde River, shall not be allowed (PL 90-542, Section 7(a)).

Any conflict between the provisions of the Wilderness Act and the Wild and Scenic Rivers Act shall be resolved in favor of the more restrictive provisions (PL 90-542, Section 10(b)).

This designation shall not prevent water users receiving Central Arizona Project water allocations from diverting that water through an exchange agreement with downstream water users in accordance with Arizona water law (P.L. 98-406, Arizona Wilderness Act, 1984).

The following Desired Conditions (Goals) apply to Coconino, Prescott, and Tonto National Forest lands within the Wild and Scenic River corridor for the Verde River. This management direction is located in the CRMP. For the Coconino National Forest summarized management direction for the VWSR is located in Management Area-2 (MA2), for the Prescott refer to the MA-9, and for the Tonto refer to MA-1C, MA-1D, and MA-4B.

Desired Conditions (Goals) for Wild and Scenic Sections

Scenery

Within the VWSR corridor the public experiences a landscape that is dominated by a free-flowing river and is predominantly natural appearing. Deviations from the natural landscape are limited and may include valued cultural landscape features and essential and minimal management elements that blend with the natural landscape. The Childs area is considered a valued cultural feature and managed to retain its scenic integrity.

Scenic integrity is Very High throughout the VWSR corridor except at Beasley Flat and Childs, where the scenic integrity is High. Important and desired cultural features are identified and the public has an opportunity to view them.

Fish

The VWSR contains high quality habitat for self-sustaining populations of razorback sucker, Colorado pikeminnow, roundtail chub, and other native fish species. The public is aware of the importance of native fish and releases listed species when caught. The public is aware of sport fishing resources and opportunities. Aquatic habitat is maintained in a condition with low substrate embeddedness, abundant aquatic food supply, and stable streambanks.

Wildlife

Wildlife management within the VWSR focuses on a variety of riparian dependent species including migratory birds, management indicator species, game species, and threatened, endangered, and sensitive species such as southwest willow flycatcher, yellow-billed cuckoo, and bald eagle. Habitat condition for these species is at optimum levels as determined by vertical and horizontal cover, plant density, and species composition of naturally occurring riparian vegetation. Population trends are identified and adjustments made in permitted activities when needed to protect habitat. In the Wild Section, natural habitat processes occur, while habitat improvements are implemented as needed to meet wildlife habitat management objectives in the Scenic Section.

The river corridor provides important consumptive and non-consumptive wildlife use opportunities for visitors. The public is aware of these opportunities as well as species protection requirements.

Cultural/Historic

Visitors to the VWSR corridor are aware of the cultural and historic values present, the role of human activity in shaping the landscape of the area, and the importance of protecting these resources. Cultural and historic sites are accessible for public visitation and interpretive facilities are available at primary river access points.

Historic and cultural properties are preserved in place wherever feasible. These sites are protected from vandalism, looting, pothunting, and other forms of unnatural deterioration by inspection and monitoring. Excessive forms of natural deterioration such as gully erosion and animal burrowing that threaten the integrity of features or cultural deposits are minimized. Adverse effects from management activities, visitor impacts, and damaging levels of natural deterioration are mitigated.

An inventory of historic and cultural sites, traditional tribal use areas, and places of traditional or religious significance provides data on all types of sites and cultural values present in the valley. The significance of the historic and cultural resources of the VWSR corridor is recognized in a nomination to the National Register of Historic Places.

Vegetation

Plant communities within the River corridor are dominated by native species. Woody, herbaceous, and emergent native vegetation is present and consistent with its potential

species composition, density, and structural diversity. Native vegetation offers both bank protection and sediment trapping during floods. Gallery forests are a component of the floodplain surfaces. Trees, shrubs, and grasses cover upland areas adjacent to the River. Soil condition, grass density, and organic matter allow for infiltration of precipitation. Development of native plant communities is not impeded by invasive plant species

Recreation

The VWSR offers exceptional river-related recreation opportunities that emphasize non-motorized recreation. Recreation activities occur at appropriate locations and intensities such that ORVs are protected and enhanced. Recreation opportunities and activities are primarily nature based and offer outstanding opportunities for experiencing scenic beauty, and the intrinsic cultural and natural resources associated with the river. The high demand for both camping and day use of the VWSR is balanced with the maintenance of outstanding opportunities for primitive recreation and solitude in the Verde Wild River.

Facilities and management emphasize recreation opportunities for individuals, families, and small groups. Both day use and camping recreation opportunities are offered, within a predominantly undeveloped river setting. Beasley Flat and Childs areas are managed for higher levels of visitation and to provide river access while meeting the demands of intensive day-use recreation activities in the river's floodplain. Recreation facility operation, maintenance, enforcement, and management presence are consistent with desired resource conditions for ORVs. Recreation user conflicts are minimal.

Except for the developed areas of Childs and Beasley Flat, the VWSR is managed for a predominantly uncrowded setting. The character of recreation settings is identified and managed through the Recreation Opportunity Spectrum (ROS). Recreation use activities and capacities are established for commercial and non-commercial uses consistent with outstandingly remarkable values and ROS/WOS (Wilderness Opportunity Spectrum) classifications.

Boating activities are allowed, consistent with protection and enhancement of the ORVs. Boating on the VWSR offers outstanding opportunities to experience whitewater rafting on a wild and free flowing river. There are undeveloped river camps available and opportunities for primitive recreation and solitude.

Opportunities for new commercial recreation uses are very limited. Protection of the natural resources, non-commercial recreation experience, and availability of recreation space for general public use are primary considerations in managing recreation special uses.

Access and Travel Management

Roads and trails provide access within the VWSR consistent with protection and enhancement of scenic, cultural/historic, wildlife, and fish outstandingly remarkable values and protection of soil and water quality. The transportation system supports interpretation, recreation, and resource management activities.

Interpretation and Environmental Education

The outstandingly remarkable values of the VWSR are interpreted to provide public appreciation and understanding, and increased resource stewardship. Interpretation and

education are integral to successful resource management of the corridor. Interpretive themes stress resource protection, stewardship, "Leave No Trace" and "Tread Lightly" ethics. Interpretation and education are the primary means of accomplishing management objectives that relate to user impacts and behavior.

Wilderness

Visitors have opportunities for primitive recreation, solitude, physical and mental challenge and inspiration consistent with preservation of the Wilderness resource. Natural processes operate freely.

Management Direction for the Verde Wild and Scenic River

The remainder of the management direction (standards) is in the Verde Wild and Scenic River Comprehensive River Management Plan (CRMP, 2004). Included in the CRMP is unique direction for the Verde Wild and Scenic River along with other management direction that is duplicated elsewhere in the Forest Plan but was highlighted for the CRMP as a matter of emphasis. In addition, the CRMP has some site-specific direction not suitable for the Forest Plan, such as trail and road obliteration.

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Ponderosa Pine and Mixed Conifer, Less Than 40 Percent Slopes - Management Area 3

Analysis Areas: 1-9, 11, 12, 57, and 59
Acres: 511,015

Ponderosa Pine

The ponderosa pine vegetative type is the Forest's largest commercial timber zone. The ponderosa pine stand blanketing the Mogollon Rim is part of the largest contiguous ponderosa pine stand in the world. There are three major vegetation associations that occur in this Management Area:

- Ponderosa pine with a Gambel oak understory occurs on a wide variety of elevational and climatic ranges. It is most commonly found on warm dry slopes. The oak usually comes in after a site disturbance, such as fire or logging. New Mexican locust is often associated as another understory species.
- Ponderosa pine with intermingled groups of aspen is found mostly on the west and north sides of the San Francisco Peaks. These stands are an important tourist attraction and a source of preferred firewood.
- Ponderosa pine with a ponderosa pine understory is characterized by relatively pure stands of ponderosa pine regeneration with inclusions of Douglas-fir, white fir, and Gambel oak. The ponderosa pine regeneration is dominant and occupies more than 75 percent of the site.

Logging, grazing, firewood gathering, hunting, and recreation are historic uses. There are many roads. The area provides crucial and key habitat for many species of wildlife because of diversity of cover and food production. Deer, elk, turkey, and songbird nesting habitat are found in the area.

Ponderosa pine is often called a fire dependent species because fire is required for successful regeneration. The thick bark of the ponderosa pine provides more protection from fire than bark of some other species. Ponderosa pine productivity can be maintained through harvesting and use of fire. Intermediate harvesting improves the growth rates on the remaining trees by concentrating the site's growth potential onto fewer trees. Stocking level control early in the life of the stand, precommercial and commercial thinning, is important to the long-term stand growth rates.

Natural fuel accumulations are moderate, 15+ tons per acre, and fire occurrence is the highest in the nation (see EIS Chapter 3). Logging and precommercial thinning residues can add 10 to 30 tons per acre. These accumulations can produce sufficient heat (B.T.U.'s) and flame length to kill residual trees during wildfires. Dispersed recreation use is heavy and risk of person-caused fires is high.

The incidence of dwarf mistletoe is moderate Forest-wide. However, areas of heavy infestations are a continuing problem and significantly reduce growth.

Mixed Conifer

The woody vegetative composition of the mixed conifer is variable and consists of overstories and understories of ponderosa pine, Douglas-fir, white fir, and aspen in a wide variety of mixtures.

Recreation, timber harvest, and wildlife are the major uses of the mixed conifer. Dry and wet meadows are interspersed throughout the area and provide an important source of food for wildlife and domestic livestock. Douglas-fir mistletoe and spruce budworm are prevalent.

Wildfires have played an important role historically. Wildfire has been controlled for approximately 70 years and natural mortality has resulted in fuel loadings of 10 to 50 tons per acre. Logging and precommercial thinning have created concentrations of fuel that vary between 20 and 60 tons per acre. Lightning or person-caused fires in fuels of 20 or more tons per acre during periods of high fire danger usually result in a total kill of all vegetation. Grasses and forbs are quick to take over a burned area and vegetative succession begins again. The size and distribution of aspen patches provide a living map of fire history or insect outbreaks.

Management Emphasis

Emphasize a combination of multiple-uses including a sustained-yield of timber and firewood production, wildlife habitat, livestock grazing, high quality water, and dispersed recreation.

Highlights include:

- Manage for timber production using Integrated Stand Management (ISM) to achieve diverse and healthy stands. Manage to reduce or eliminate dwarf mistletoe. Protect stands from unacceptable losses due to insects or diseases.
- Visual quality objectives are generally Modification and Partial Retention. Maximum Modification is allowed to manage insect or disease outbreaks or to harvest fire-killed timber. Acceptable variations in VQO classification acres are outlined in the Forest-wide Standards and Guidelines.
- Manage habitat for the following indicator species through ISM:
  - Turkey
  - Goshawk
  - Pygmy nuthatch
  - Elk
  - Abert squirrel
  - Red squirrel
  - Hairy woodpecker
  - Spotted owl

- Manage to make firewood available from major species within this MA.
- Manage to make miscellaneous forest products available in a cost-effective manner, including Christmas trees, poles, posts, and wildings.
- Manage the approximately 12,100 acres identified as the pine-aspen capability area for aspen, on a regulated, sustained-yield basis to maintain aspen as a component of the Forest. Feature a rotation to enhance firewood production and wildlife habitat. Use firewood sales to achieve regeneration by sprouting.
- Manage livestock grazing generally at Level C and D. Closely coordinate range management with wildlife habitat management to achieve compliance with the State Comprehensive Plan. Coordinate with timber management to take advantage of transitional range created behind intermediate timber harvests.

Program

Components	**Activities**	**Standards and Guidelines**
Recreation		**Recreation Management**
		Manage dispersed recreation at the Standard Service Level.
		Prohibit camping between Lockett Meadow Trailhead and the Inner Basin. The access road is managed as a trail and closed to vehicles, except that the City of Flagstaff may periodically be authorized to use it for special vehicles such as drill rigs if determined appropriate through environmental analysis.
		Manage the Mount Elden/Dry Lake Hills to maintain a semi-primitive nonmotorized ROS class. Build a trail system to make a loop trail from Buffalo Park over the Dry Lake Hills to the Mount Elden Trail, then through the Elden Environmental Study Area on the El Paso natural gas pipeline and back to Buffalo Park. The trails are for nonmotorized traffic only, except the Schultz Creek Trail which is open to motorized vehicles. The Mount Elden Lookout Trail and the portion of the Oldham trail between Buffalo Park and the El Paso natural gas pipeline are closed to horse and packstock. Trails in the system have standard level maintenance.
		Schultz Tank and immediate vicinity will be day use only.
		A primitive horse camp may be developed at either the Schultz Pass trailhead or the proposed Schultz Creek trailhead. Dispersed use will be monitored in these two locations to determine the most desirable site.

Program
Components Activities Standards and Guidelines

Schultz Creek trail will remain open to all types of use. Monitoring will be done to provide future information on development of any user conflicts. If conflicts develop, restrictions will be determined at that time.

Loading and unloading horses is not permitted at the Schultz Tank parking area.

Livestock and pets are not permitted to water or otherwise use Schultz Tank because it is part of the water supply for the Doney Park Community.

Range Resource Planning and Inventory

Range

Grazing allotments will generally be managed to Level C and D.

This MA is open to grazing. There are 623,222 acres of full capacity lands. Of these total acres, 46,740 acres are in less than satisfactory condition. Less than satisfactory range conditions are improved through completion of the development program contained in AMP's.

Range Forage Improvement Maintenance

Evaluate forage improvements and maintain forage improvement acres in satisfactory or better condition. Attain a balanced composition of cool and warm season forage species.

Broadcast seed immediately following natural or prescribed burns, with high production, shade tolerant, multi-growing season species unless the area is planned for timber regeneration.

Seed behind intermediate timber harvests with mixes tailored to fit the site where additional forage is needed. Emphasize high production, shade tolerant, multi-growing season species that will not inhibit tree regeneration. Do not seed after the last intermediate harvest if tree regeneration will be inhibited. Do not seed after seed cuts.

Where open meadows in the pine/mixed conifer type are to be maintained, eliminate invading overstory vegetation, stabilize gullies to raise the water table, scarify the soil, and seed with appropriate grass and forage species. Control livestock grazing through management and/or fencing to establish the revegetation.

Identify each terrestrial ecosystem and assess soil properties to determine:

- Soil limitations for soil scarification purposes.
- The method of soil scarification best suited for the soils of the project area.
- Soil potential for revegetation - Identify soils that are suitable or unsuitable for successful revegetation.

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Program Components	**Activities**	**Standards and Guidelines**
		➢ Erosion hazard and on-site soil loss - Soils with a potential erosion hazard rating of severe will require specific resource management activities in order to avoid severe impairment of soil productivity.
		Reforestation
Timber		Monitor reforestation sites for soil moisture and/or soil temperature to help determine moisture availability for seedling survival.
		Inventory, diagnosis, prescription, and monitoring is done for reforestation projects.
		Artificial regeneration is required on an estimated 20 percent of the suitable timber lands and on the remaining 80 percent regeneration is assumed to occur naturally following regeneration harvest. On naturally regenerated lands site preparation is required on an estimated 88 percent of the acres and 12 percent regenerates without site preparation.
		Planting is used where needed to establish a new timber stand. The number of trees planted varies by site according to the number needed to regenerate the site. Average annual planting needs are estimated at 560 acres for the first decade.
		Satisfactory stocking ranges from 120 to 325 trees per acre depending on site class and management objectives, within 5 years after final removal, FSM 2470.
		Terrestrial ecosystems requiring reforestation are inspected to determine: ➢ Soil potential for reforestation - Identify soils that are suitable or unsuitable for successful reforestation. Adjust stocking levels and take other measures where successful reforestation is limited by environmental factors in the terrestrial ecosystem. ➢ Erosion hazard and on-site soil loss - Soils with a potential erosion hazard rating of severe will require specific resource management activities in order to avoid severe impairment of soil productivity. ➢ Soil potential for site preparation - Identify soils that present severe limitations for successful site preparation such as rocky and clayey soils. Require specific resource management activities where successful site preparation is limited by environmental factors in the terrestrial ecosystem. ➢ The method of site preparation best suited for the soils within the project area.
		Site preparation is done where needed to establish a new timber stand. Mechanical and chemical methods and prescribed fire are used. Use pesticides only when they are legally available, economical, biologically sound, and environmentally acceptable.
		Mechanical site preparation is not done on sensitive soils that have a high erosion hazard or where rocky soils are a limiting factor.

Program
Components Activities Standards and Guidelines

Reforested areas are protected from animal damage until the plantations are established with satisfactory stocking, usually 5 to 10 years, FSM 2470 and FSH 2409.26b. Where needed to prevent livestock damage and ensure satisfactory stocking, plantations are fenced and assigned no grazing capacity until seedlings are established.

Lands classified as suitable but currently unstocked or understocked that may not achieve minimum levels naturally are evaluated for reforestation potential and are regenerated if environmentally and economically feasible; otherwise, these lands become unsuitable for timber management.

Continue with current management on the Wild Bill Study Plots only as long as the incumbent permittee has the grazing permit; after the incumbent's use is ended, the Wild Bill study plots, formerly used for range forage research, will be reforested on a schedule to provide appropriate diversity within the 10K Block.

Slash disposal during the regeneration period is done as necessary to facilitate site preparation and meet protection standards.

No grass is seeded during the regeneration period unless it is necessary for erosion control.

Nursery Management

Each District with suitable timber lands will collect sufficient tree seed by species to maintain a 10-year supply.

Genetic Forest Tree Improvement Program

Select, certify, manage, and protect ponderosa pine superior trees for the Elden, Flagstaff, Long Valley, Mormon Lake, and Blue Ridge Ranger Districts. Establish a seed production area in each of the two major seed zones (130 and 140) in Decade 1.

Timber Stand Improvement

Overstocked stands are precommercially thinned to proper growing stock levels as needed, see FSM 2470

Plan fuel treatments on an area basis. Fuel treatments will be designed to meet objectives on the area as a whole, not on every acre. Plan fuel treatments that have the least impact on the site, meet resource management needs, are cost effective, and meet fuel treatment objectives.

Program
Components **Activities** **Standards and Guidelines**

Silvicultural Examination and Prescription

Silvicultural prescriptions emphasize treating dwarf mistletoe infections to bring them down to acceptable levels, **unless threatened, endangered, or sensitive species habitat requirements take precedence.**

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Program
Components Activities Standards and Guidelines

Integrated Stand Management (ISM)

If there are reductions in the treatment of specific age classes, for example reduced pulpwood harvesting, increased time frames may be necessary to meet stand management objectives or stands will have smaller average diameter at rotation.

Establish and maintain stand diversity through ISM to provide suitable habitat for wildlife in lands suitable for timber production, while maintaining or enhancing timber resource production and timber age class distribution (regulation).

10,000-Acre Blocks (10K Blocks)

Within each 10K Block treated, uneven-aged management will be emphasized. Where even-aged management is used not less than 8 percent nor more than 40 percent of the suitable lands is scheduled for regeneration during any 20-year period, provided there are adequate stands available for regeneration. Stands can be regenerated if they have, generally, reached CMAI, have unacceptable dwarf mistletoe ratings, or have multiple-use objectives that require the stand to be regenerated before CMAI. Regenerated stands may be harvested at 95 percent of CMAI. Page 123

The following standards and guidelines will apply in areas where threatened, endangered, or sensitive habitat requirements do not conflict. Habitat requirements for threatened, endangered, or sensitive species take precedence over requirements for other species. The headings included are: Raptors, Wildlife Cover, Squirrel Habitat, Spotted Owl and Bear Habitat, Turkey Nesting and Roosting, and Snag Management.

Raptors:

Maintain a current inventory of nest locations. A nest group consists of nest tree and adjacent trees and is maintained at least as follows unless environmental analysis indicates either more or less is needed:

- Goshawk -- Please refer to the Standards and Guidelines in the Forest-wide management direction on page 65-7 through 65-11.
- Cooper's hawk -- 15 acres of uncut area around active nests.
- Sharp-shinned hawk -- 10 acres of uncut area around active nests.
- Other raptors -- An area extending to 50 feet from active nests is left uncut.
- Bald eagle winter roosts -- Protect with a 300-foot radius uncut zone around the roost. Road development should avoid the roost and uncut zone.

Program
Components Activities Standards and Guidelines

- Ospreys -- At the start of Forest Plan implementation, the only known osprey nesting area is at Lake Mary. The following Standards and Guidelines apply to this nesting area. As additional nesting territories are discovered, environmental analysis is done to determine if, and to what extent, these Standards and Guidelines apply:
  - Restrict all logging activities within one-fourth of a mile of active nests from March 1 through August 15.
  - Provide a 20-acre nest site of uncut area around each existing (occupied or unoccupied) nest.
  - Provide at least 3 potential nest sites in preferred nesting habitat within Designated Bald Eagle/Osprey Emphasis Area(s). This potential nest site should be at least 5 acres of mature and overmature trees with at least 2 snags per acre greater than or equal to 20 inches. Use of uneven-age stands is optimal.
  - Construct artificial nesting platforms as needed for habitat maintenance and improvement.
  - Forest-wide, during 10K Block planning, give high priority to managing for snags within potential osprey habitat. Snags and old-growth managed for osprey habitat contribute to the 10K Block requirements.
  - Manage for at least 2 snags per acre of 20" or greater. Snags should be the height of the canopy or taller, on at least percent of the acres along the shorelines. Where necessary to provide sufficient perches and nest sites, take actions to create snags.
  - Road construction or reconstruction should avoid osprey nest sites. New roads should not be constructed within 660 feet of nests.
  - Where human disturbance is causing reproductive failure, evaluate the need to close the area from March 1 to at least August 15.
  - In cooperation with the Arizona Game and Fish Department, develop an implement an osprey and wintering bald eagle public education program.

Wildlife Cover:

Manage for at least 30 percent cover in 10K Blocks. Of this total at least one third is in thermal cover, one third is in hiding cover, and the remaining one third is in either thermal or hiding cover. Thermal cover for elk is a stand of coniferous trees tall enough to allow animal movement and bedding with a high degree of crown closure. Hiding cover is vegetation capable of hiding 90 percent of a standing deer or elk from human view at a distance of 200 feet or less. Emphasize maintaining some thermal cover in known travelways and bedding areas. Emphasize maintaining some hiding cover adjacent to dependable water and key openings, along known travelways, and in pine stringers. Cover areas should be at least 200 feet wide; however, pine stringers less than this width may still be managed for hiding and thermal cover

Program
Components Activities Standards and Guidelines

Evaluate existing and potential cover on a stand by stand basis. Consider open road densities, topography, and non-commercial tree, shrub, and herbaceous species to determine effective cover. The presence of non-commercial species, such as Gambel oak, New Mexico locust, juniper, aspen, and bigtooth maple, or topographic features such as drainages or other terrain breaks, rock outcrops, or large surface boulders, will normally result in less BA/GSL of commercial species to meet cover requirements. The measure of effective cover is meeting the definition and objectives fro hiding cover or thermal cover.

Protect and manage to include hiding and thermal cover known fawning and calving areas and defer logging activities from May 15 to June 30 in these areas.

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Program
Components Activities Standards and Guidelines

The following table lists basal area (BA) and growing stock level (GSL) which experience has shown will fully meet hiding and thermal cover requirements in even age ponderosa pine and mixed conifer when there are no cover effects from topographic features or other species. The presence of more than one size class may reduce the amount of BA/GSL required to provide effective cover. Before determining that cover must be obtained by managing stands in suitable lands for these BA/GSL's, conduct field examinations to evaluate cover distribution needs and to determine whether other factors contributing to effective cover are present.

Species	Size Class	Acceptable Range
Ponderosa Pine - Hiding Cover		
	1 – 5” dbh	150 – 170 GSL
	5 – 9” dbh	150 – 180 GSL
	9 – 12” dbh	160 – 200 BA
	Area Size	15 – 25 acres
Mixed Conifer - Hiding Cover		
	1 – 5” dbh	80 – 100 GSL
	5 – 9” dbh	100 – 120 GSL
	9 – 12” dbh	100 – 120 BA
	Area Size	15 – 25 acres
Ponderosa Pine - Thermal Cover		
	5 – 9” dbh	180 – 200 GSL
	9 – 12” dbh	180 – 210 BA
	12 – 15” dbh	200 – 240 BA
	Area Size	30 – 40 acres
Mixed Conifer - Thermal Cover		
	5 – 9” dbh	140 – 160 GSL
	9 – 12” dbh	140 – 160 BA
	12 – 15” dbh	160 – 180 BA
	Area Size	30 – 40 + acres

Squirrel Habitat:

Manage for at least 20 percent of potential habitat capability for red squirrels in 10K Blocks as determined by the Forest Habitat Capability Model. As needed to meet habitat capability, protect red squirrel primary caches at a density of one cache per 2 acres. Retain all trees within a 26-foot radius from the cache (1/20th acre) (mixed conifer only).

Manage for at least 20 percent of potential habitat capability for Abert squirrels in 10K Blocks as determined by the Forest Habitat Capability Model.

Spotted Owl and Bear Habitat:

Whenever possible, areas managed for old-growth, bear, and spotted owls are the same. Evaluate owl and bear habitat needs **as well as cover** during project planning.

Program
Components Activities Standards and Guidelines

MEXICAN SPOTTED OWL

Please refer to the standards and guidelines in the Forest-wide management direction on pages 65 through 65-6.

In key mixed conifer bear habitat, manage for at least 30 percent of the mixed conifer to meet hiding cover needs. Give priority for cover management in drainage bottoms, heads of drainages, and isolated pockets of mixed conifer. Defer logging activities from April 15 to June 30 in known bear maternity areas.

Turkey Nesting and Roosts:

Defer timber harvesting and slash treatment activities in turkey nesting areas from April 15 through June 30.

Leave scattered patches of untreated slash within 1/2 mile of dependable water in actual or potential turkey nesting areas. Patches are at least 1/4 acre in size and cover at least 10 percent and not more than 20 percent of the harvested area. Slash is left untreated for at least 5 years, longer if it is determined that nesting is still occurring in the area. These guidelines will be evaluated and adjustments made, if necessary.

Retain and/or develop an average of at least two turkey roost tree groups per section, in actual or potential turkey habitats.

Retain and/or develop an average of at least four turkey roost tree groups per section in identified key turkey winter range.

Snag Management:

Snag Definition --

- A ponderosa pine/mixed conifer snag is defined as a tree greater than 12 inches d.b.h. and 15 feet tall.
- An aspen snag is defined as a tree greater than 12 inches d.b.h. and 15 feet tall.
- An oak snag is defined as a tree greater than 10 inches d.b.h. and 10 feet tall.

Within 10K Blocks at least 50 percent of the forested land meets the following criteria for snags:

- At a minimum, snags are maintained at an average of 200 snags per 100 acres.
- Snag species will represent the tree species composition of the stand.
- In high priority areas as determined by environmental analysis, including both edge habitats adjacent to meadows or water and interior stands, manage for an average of 280 snags per 100 acres.
- Snags are not available for firewood unless designated because of being surplus to wildlife needs, for example, after wildfires.

Program
Components Activities Standards and Guidelines

- Snag acres in old-growth can be used to count toward the snag requirement within a 10K Block.
- Snags and potential snags will be identified and tallied for each stand. Markers will paint mark each tree with a yellow "w".
- Leave potential snags where needed to meet snag requirements. The following are priorities for leaving trees for future snags:
  - obvious culls with conks and cavities present,
  - less than one-third merchantable tree including wolfy and crooked trees,
  - spiketops less than one-half merchantable,
  - any tree expected to die before expected harvest of the sale being marked, and
  - mistletoe and genetically poor trees will not be left unless they are planned to be killed.
- Carefully plan salvage sales to meet snag standards where snag numbers are less than desired levels. Delay salvage sales if numbers are too low to allow salvage.
- Nonharvest areas, such as wilderness or unsuitable timber lands, can be credited toward meeting management direction for snag management. Use of nonharvest areas from adjacent 10K Blocks does not exceed one-third of the 10K Block management objectives for snags.

In 10K Blocks seriously deficient in snags, environmental analysis will be done to evaluate the marking of merchantable green trees to meet snag numbers and ISM objectives.

In order to be considered a road hazard, a snag must lean toward the road and must be tall enough to reach the road if the snag fell. Any snag not meeting both requirements will not be marked for removal as a hazard snag.

Focus media attention on snag management at least twice annually, just before and at the height of firewood season.

OLD-GROWTH:

Please refer to the standards and guidelines in the Forest-wide management direction on pages 70-1 through 70-2.

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Program
Components Activities Standards and Guidelines

Stand Size

The following minimum factors are considered in obtaining stand diversity. The presence of one or more of these factors constitutes a difference between stands.

- Stand age - ± 20 years difference in measurable age.
- Density - ± BA 30 $ft.^2$
- Average Stand Diameter - ± 4 inches. If average stand diameter is larger than 16 inches, then this parameter will not be used.
- Species composition differences are determined by the ID Team, depending on the project or sale objectives. Overstory and/or understory species are evaluated.

Stands managed for old-growth are 100 to 300 acres in size.

Program
Components Activities Standards and Guidelines

Silvicultural Prescriptions

Management will generally use uneven-aged systems. When stands are managed under even-aged systems, the shelterwood method is the preferred method in accordance with the following guidelines (FSM 2471, FSH 2409.26d, Regional Guide).

Ponderosa Pine/Mixed Conifer Standard Silvicultural Prescription:

Shelterwood --

- Prepare site during seed cut. Cut pine to approximately 30 GSL and mixed conifer to approximately 60 GSL.
- Remove overstory that does not blend in with 0-40 year age class.
- Precommercial thin as needed.
- Use one to four commercial (intermediate) cuts. Make a cut when the available average cut volume/acre is at least 160 cubic feet/acre for the sale area. GSL's will vary from 60 to 120 depending on site, species, stand conditions, and multiple-use management objectives.
- Make preparatory cuts, where needed, for windfirmness, crown development, and/or to enhance seed bed.

In accordance with 36 CFR 219.16(2)(iii), stands may be regenerated at 95 percent or more of CMAI as determined by individual stand examination or less than 95 percent if multiple-use objectives would be better obtained.

Harvest recent dead and poor risk trees in excess of planned snag densities. Snags without red needles are retained for wildlife purposes, except wildfire-killed trees.

Aspen/Conifer Silvicultural Prescription:

Aspen/conifer lands to be managed for aspen include all stands having a minimum of 25 percent of the total stems (greater than 5 inches d.b.h.) or 25 percent of the GSL in aspen, and which are suitable for aspen regeneration.

Stands having less than 25 percent of total stems (greater than 5 inches d.b.h.) and GSL in aspen will be evaluated through the environmental analysis process to determine management objectives and direction.

On aspen/conifer lands determined to be managed as ponderosa pine or mixed conifer through environmental analysis, existing aspen stems may be cut.

- Approximately 254 acres per decade are converted to aspen over seven decades.

Program
Components Activities Standards and Guidelines

- On aspen/conifer lands managed for aspen, the rotation length is a minimum of **90** years. Minimum stand diameter at regeneration is 11 inches d.b.h. Stands converted to aspen are managed by Standards and Guidelines for MA 5, Aspen.

Gambel Oak Silvicultural Prescriptions:

Manage oak to improve wildlife habitat and provide firewood. Silvicultural prescriptions provide a balance of age classes within a 10K Block and provide a sustained-yield of sprouts, mast, cavities, and foliage volume. Maintain oak components wherever they occur. Salvaging of dead, down oak is encouraged. Oak showing obvious wildlife use will be retained.

Administer green oak harvest with the same care that is used in the management of other timber sales, including tree marking. Either "cut" or "leave" trees may be designated.

Oak management is considered in all activities, including harvest of other species.

Gambel oak occurs on both suitable and unsuitable timber lands and is managed differently depending on suitability. There are two oak prescriptions, one for nonindustrial wood (Timber's Stand Data Base Component 265 = code 951) and one for oak in association with suitable ponderosa pine stands (Timber's Stand Data Base Component 265 = codes 500's or 600's). When oak comprises 50 percent of more of the stand's BA, the stand will be managed for oak (Timber's Stand Data Base Component 265 = code 951).

Gambel Oak Non-industrial Wood --

- Shelterwood--no site preparation during the seed cut.
- Leave sprouts for at least 3 years. After that, manage for one sprout per inch of diameter of the stump.
- When thinning thickets of trees less than 10 inches d.b.h., emphasis is on removing trees with less than 60 percent live crown. Retain at least 40 percent of the stems.
- Preparatory and/or seed cut are done to open the stand to allow sunlight on the ground to aid in regeneration. Retain at least 10 trees per acre greater than 12 inches d.b.h. with greater than 60 percent live canopy.
- Harvest excess overstory when regeneration is established and certified. At least 10 seed trees per acre are left standing to die of natural causes.
- Regeneration cuts can occur at anytime to meet stand objectives.
- Minimum stand size is 1 acre and maximum stand size, 10 acres.
- To maximize sprouting, cutting is done from July 15 through May 15.
- Standing dead trees greater than 10 inches d.b.h. and greater than 10 feet tall and live trees containing one or more cavities are retained regardless of vigor at a density of at least two cavity bearing trees per acre.

Program
Components Activities Standards and Guidelines

- In 10K Blocks where the snag density objectives are exceeded, areas containing excessive mortality may be harvested under the following criteria:
  - Retain at least two snags per acre greater than 15 inches d.b.h. without signs of wildlife use.
  - Retain trees showing obvious signs of wildlife use or rot.
  - Retain trees with some live crown and less than 75 percent trunk girdling unless removal is necessary to meet overall objectives.

Gambel Oak on Tentatively Suitable Lands --

- Oak component within a stand will not fall below 20 percent of the total stand basal area when average oak d.b.h. ≥5 inches.
- Rotation age for the oak component will be 240 to 360 years.
- Rotations for conifer and oak will be about 60 years out of phase to avoid competitive interaction during seedling establishment.
- Oak component will not fall below one sprout cluster per acre when average d.b.h. ≤5 inches.
- Use an irregular shelterwood system for the oak component. Seed trees are left standing to die from natural causes.

Bigtooth Maple Silvicultural Prescription:

Bigtooth maple areas are managed to maintain coniferous overstory that provides shading for existing and the regenerated maple areas and a BA of at least 120 in 10 to 16-inch overstory trees. Manage for 280 snags/100 acres greater than 12 inches d.b.h. and greater than 15 feet high. Snags are to be randomly dispersed. White fir over 20 inches d.b.h. is not cut, nor is any white fir showing signs of rot.

Blue Spruce Silvicultural Prescription:

Prescriptions will preserve existing stands. Known locations are West Fork of Oak Creek, Volunteer Canyon, and Hochderffer Hills.

Alligator Juniper Silvicultural Prescription:

The alligator juniper component of the ponderosa pine is managed primarily for maintaining and enhancing wildlife habitat by the following criteria:

- In areas where alligator juniper trees comprise less than 50 percent of the total basal area, retain live alligator juniper trees ≥ 12 inches d.b.h.
- In areas where alligator juniper trees comprise more than 50 percent of the total basal area, live trees ≥ 12 inches d.b.h. may be removed if < 25 percent of the crown is living.
- In both of the above cases, some live trees ≤ 12 inches d.b.h. may be removed. Retain at least 40 percent of the trees.

Program
Components Activities Standards and Guidelines

Pine Stringers Silvicultural Prescriptions:

Pine stringers are noncontiguous, narrow communities of predominantly ponderosa pine that extend into the pinyon-juniper woodland below the normal elevational distribution of ponderosa pine. Manage pine stringers to emphasize wildlife habitat needs by maintaining turkey roosts and big game cover except where environmental analysis indicates otherwise.

Mixed Conifer Stringers in Ponderosa Pine Silvicultural Prescription:

Mixed conifer stringers, primarily Douglas-fir, are noncontiguous, narrow communities that extend into the ponderosa pine. Manage the mixed conifer stringers to emphasize wildlife habitat needs by maintaining big game cover except where environmental analysis indicates otherwise.

Visual Management

Timber stands managed to meet visual management objective (VQO) of foreground retention are managed as follows:

- Maintain or create a mosaic of stands of various sizes and age classes throughout the rotation.
- Obtain a stand of ponderosa pine and/or mixed conifer at maturity of 30 to 45 trees per acre.
- The average diameter of mature trees is 20 inches or greater. The large trees are maintained as long as possible. Extended rotations may be necessary.
- Allow naturally regenerated trees to stay if the overall visual quality objective is met.
- Obtain diversity of landscape management features.
- Created slash is promptly treated.
- Mistletoe treatments are designed to meet as many of these Standards as possible.
- Precommercial thinning is done as needed to meet the visual quality objectives.

Silvicultural Prescription in Foreground Retention Areas:

Uneven-Aged Management –

- Uneven-aged stands have three or more distinct age classes present. The different aged trees are usually intermixed. Cutting methods are used that develop and maintain uneven-aged stands such as single-tree selection and group selection. Stands are entered on a 20-year cutting cycle and cut to a GSL of 100. Stand size is determined by the scale of the landscape, width of the road, and the speed of the viewer (e.g., I-17 vs. 89A). Stand size may be less than 10 acres.

Program
Components Activities Standards and Guidelines

Deferred Management

- Deferred harvest management is used on stands that presently meet foreground Retention stand characteristics. These stands are managed by the uneven-aged management prescription when the stands no longer meet foreground Retention stand characteristics.

Roads to be managed for foreground Retention within this MA and in MA 4 (other areas of foreground retention on the timber type are found in MA's 13 and 19):

Road	**Miles**
I-17	21
I-40	8
U.S. 180	26
U.S. 89A South	23
U.S. 89A North	5
Arizona Hwy 87	29
FH 3	46
FH 9	8
418-419 (Hostetter)	13
420 (Schultz Pass)	10
522 (Snow Bowl)	6
151 (Hart Prairie)	6
557 (Mt. Elden)	2
90 (Mormon Lake)	8
240 (Pinewood - Mormon Lake)	10
231 (Woody Mnt)	14
538 & 538A (Turkey Butte)	6
213 (Stoneman Lake)	5

An average 300 feet on each side of the road will be managed as foreground Retention (nearly 20,000 acres) total from all MA's. Determine the exact width of the foreground Retention area after on-the-ground review.

Foreground Partial Retention (VQO) Silvicultural Objectives are:

- To maintain or create a mosaic of stands of various sizes and age classes throughout the rotation with a mature tree component (±18 inches d.b.h.) on at least 10 percent of the area.
- Created slash will be treated.

Silvicultural Prescription in Partial Retention Areas:

Except for the following GSL's, the standard silvicultural prescription for foreground Partial Retention areas is the same as the standard silvicultural prescriptions for Ponderosa Pine/Mixed Conifer (see page 130). Stand sizes may be less than 10 acres;

Program
Components Activities Standards and Guidelines

Growing stock levels (GSL) are maintained approximately as follows:

Ponderosa pine -	Site 75 - 90 GSL
	Site 56-74 - 80 GSL
	Sites less than 56 - 70 GSL
Mixed conifer -	Sites > 65 - 90 GSL
	Sites < 65 - 70 GSL.

Miscellaneous Forest Products

Underneath transmission lines there may be a potential for Christmas tree production, firewood, wildings, pulpwood, and/or other miscellaneous forest products. The land is managed to attain products whenever possible. The choice of silvicultural objectives depends on the profile of the powerline and the multiple-use objectives.

Firewood

Law enforcement emphasizes minimizing resource theft, damage, and user conflicts. Sign to inform and educate the public. Aggressively pursue violators.

Emphasize using slash for firewood. Unless there are documented resource or protection needs, leave slash for at least 2 years before disposal. Clearly identify free-use firewood areas to assist the public in removing wood residues and thereby reducing future slash disposal costs. Provide easy to follow maps and signing for designated firewood areas.

Timber Sale Preparation

Complete sale planning, design, and layout. Appraise, advertise, open bids, and make sale awards on sales scheduled for the planning period.

Minimum cut volumes per acre are usually between 300 and 500 (average 400) board feet of sawtimber and/or 160 cubic feet (2 cords) per acre for pulpwood except on Colorado Plateau Pulpwood Sale (CPPS) where pulpwood must average 40 cords on 20 acres. CPPS terminates March 1989.

Utilization Standards:

Sawtimber:	9+ inch d.b.h. to 6 inch d.i.b. top.
Pulpwood:	5+ inch d.b.h. to 4 inch d.i.b. top.
Firewood:	Sizes vary by objectives.

Program
Components Activities Standards and Guidelines

Evaluate K-V soil and water and wildlife resource improvement opportunities on sale areas. Plan projects to improve areas in unsatisfactory condition and to maintain those in satisfactory or better condition.

Priorities for use of K-V funds will be:

1. Regenerate stands.
2. Correct serious problems that have been identified such as erosion that needs to be stopped to preserve soils, needed T&E habitat improvement, and treatment of dwarf mistletoe infected stands.
3. TSI where needed to manage stocking levels and where the site justifies the costs.
4. Restoring riparian areas and closing roads by revegetation, channel restoration, blocking, providing drainage, obliteration, or combination of these types of activities.
5. Seeding to improve forage in areas where additional forage is needed.
6. All other work.

Exceptions below priority 2 may be made by the Forest Supervisor based on documented results of an environmental analysis.

Construct landings and decking areas outside of riparian areas.

Locate or relocate roads out of riparian areas, except at designated crossings. Obliterate unnecessary roads in riparian areas.

Avoid or designate stream course crossings for skid trails. Limit to the minimum needed. Choose crossings with stable conditions or stable bed and bank material such as cobble or rock.

Restrict skidding and hauling to soil moisture conditions that do not cause excessive soil compaction, displacement, or puddling. Restrict timber sale activities to slopes of 25 percent or less on cinder cones under conventional skidding.

For each timber sale area, identify each terrestrial ecosystem and assess soil properties to determine:

- Soils with severe potential for sheet and gully erosion, such as steep slopes, cinder cones, alluvial bottoms, and swales, that require specific resource management activities in order to avoid severe impairment of soil productivity.
- Soil limitations for site preparation - Identify soils that present severe limitations for successful site preparation such as soils with severe erosion hazard and shallow soils. Require specific resource management activities where successful site preparation is limited by environmental factors in the terrestrial ecosystem.

Program
Components Activities Standards and Guidelines

- Soil potential for reforestation - Identify soils that are suitable or unsuitable for successful reforestation. Adjust stocking levels and require specific resource management activities where successful reforestation is limited by environmental factors in the terrestrial ecosystem.
- Whether soils are suitable, unsuitable, or unproductive for timber management.
- Soil limitations for timber harvest activities.
- Soils with high potential to convert to another vegetative type such as oak, locust, or juniper as a result of timber management activities - Modify timber management activities in these terrestrial ecosystems to halt the type conversion by approved chemical or mechanical means or by prescribed fire.

Timber Harvest Administration

Timber

Administer timber sales, pulpwood sales, permits for forest products, firewood, and miscellaneous forest products sales. This activity includes the following:accountability, financial management, field inspections, and contract interpretation and enforcement. Aggressively protect non-designated trees, including firewood, through the enforcement of the timber sale contract.

Plan, prepare, administer, and sell or issue free-use permits for commercial and personal use, miscellaneous convertible and nonconvertible products (FSM 2462).

Generally, local roads are closed until the next entry by signing and physical obstruction such as gates or barriers. Temporary roads are obliterated and returned to production. If necessary to ensure protection, off-road driving restrictions are imposed until roads are fully revegetated.

Fire Management Planning and Analysis

Protection

Suppression objective is 100 acres or less.

Prescribed fire using planned and unplanned ignitions is used to meet resource objectives.

Unplanned ignitions are not used as a management tool in the urban interface.

Annual average wildfire acreage burned should not exceed 750 acres per year on the average over a 10-year period.

Emphasize using slash for firewood. Unless there are documented resource or protection needs, leave slash for at least 2 years before disposal. Clearly identify free-use firewood areas to assist the public in removing wood residues and thereby reducing future slash disposal costs. Provide easy to follow maps and signing for designated firewood areas.

Ponderosa Pine and Mixed Conifer, Greater Than 40 Percent Slopes Management Area 4

Analysis Areas: 10, 10a, 13, 13a
Acres: 46,382

Ponderosa Pine

A small part of this Management Area (MA) has been logged in the past, generally for short distances immediately above more gentle slopes. Steep canyons having no roads in them and a number of cinder cones have not been logged.

Many of the remaining overmature trees and large snags in the pine type are in this MA. The snags are important to snag dependent species of wildlife.

The area contributes very little to the range resource because of steepness. However, the south facing slopes do provide a significant amount of big game winter habitat.

Recreation use is concentrated on trails passing through the area because of the steepness and the amount of debris on the ground. In addition, some steep slopes are scenic backdrops for sensitive recreation viewpoints.

Refer to the description of MA 3 for a discussion of vegetation, fire, and fuels.

Mixed Conifer

The vegetative composition, fire history, and natural fuels are similar to MA 3. Little to no logging activity and road building has taken place.

The area's value to wildlife is much greater than to domestic livestock because of the inaccessibility to most livestock.

Recreation use is largely limited to hiking and hunting.

Management Emphasis

Emphasize wildlife habitat, watershed condition, and dispersed recreation. Management intensity is low.

Highlights include:

- Manage with emphasis on wildlife habitat and dispersed recreation. Total acres of any Recreation Opportunity Spectrum (ROS) class may change no more than +15 percent in Decade 1 due to road or trail building and other activities.
- VQO's in this area vary and are managed in accordance with the Forest-wide standards and guidelines.
- Manage for the following indicator species:
  - Turkey
  - Goshawk
  - Pygmy nuthatch
  - Elk
  - Abert squirrel
  - Red squirrel
  - Hairy woodpecker
  - Spotted owl
- Manage the Dry Lake Hills-Mount Elden area for dispersed recreation and wildlife habitat and a semi-primitive nonmotorized ROS class.

Recreation Planning and Inventory

Recreation

Manage the Mount Elden/Dry Lake Hills to maintain a semi-primitive nonmotorized ROS class. Build a loop trail system tying into trailheads at Schultz Pass, Schultz Creek, Flagstaff-Elden Ranger Station, and Buffalo Park. Trails are for non-motorized use, except in Schultz Creek adjacent to Forest Road 420 up to Road 789. Horses and packstock are allowed except on the Mount Elden Lookout Trail and the portion of the Oldham Trail between Buffalo Park and the El Paso natural gas pipeline. The trail system is maintained at standard service level.

Manage Mount Elden/Dry Lake Hills for visual quality objective of Retention.

Range Resource Planning and Inventory

Range

The area is generally classified as no capacity range and is usually not fenced, but occasional livestock use does occur. No capacity is assigned.

Silvicultural Examination and Prescription

Timber

Conduct silvicultural examination and re-evaluate potential for suitability during first decade.

Spotted Owl and Bear Habitat:

Whenever possible, areas managed for old-growth, bear, and spotted owls are the same. Evaluate owl and bear habitat needs during project planning.

MEXICAN SPOTTED OWL

Please refer to the Mexican Spotted Owl Standards and guidelines in the Forest-wide direction on pages 65 through 65-6.

NORTHERN GOSHAWK

Please refer to the northern goshawk Standards and Guidelines in the Forest-wide direction on pages 65-7 through 65-11.

Fire Management Planning and Analysis

Protection

Standards and Guidelines for fire management planning and analysis are the same as for MA 3.

Aspen - Management Area 5

Analysis Area: 14
Acres: 3,450

Aspen is the dominant tree species, comprising 50 percent of more of stand stocking. Most of the aspen is on the west and north side of the San Francisco Peaks. Other stands of aspen are found on cool moist sites on the rest of the Forest.

There is an overstory of aspen with an understory ranging from forbs and grass to ponderosa pine and sparse conifer reproduction, usually white fir or spruce. Without silvicultural treatment, aspen stands with mixed conifer or ponderosa pine understories will convert to conifer type as the aspen overstories die. Aspen on the Forest is mostly seral.

The aspen type, especially those stands with forb-grass understories, is an important producer of forage for wildlife and livestock. Aspen sprouts are favored browse for elk, livestock, and deer.

Aspen stands are important aesthetically because of contrasting colors and changing leaves. Their leaves are a light green in summer and turn yellow in the fall. Their white trunks provide further accents.

Regionally, the commercial market for aspen wood products varies from firewood, excelsior, and pallet material to high grade paneling. Until recent demands for firewood, the demand had been relatively low compared to conifer species. The low demand resulted in little management. Aspen usually requires fire or harvesting, by clearcutting, for regeneration. Most of the existing aspen stands are a direct result of past wildfires. Successful fire control over many years has reduced the establishment of new stands and the total acreage of aspen dominated stands has decreased.

Aspen stands provide natural firebreaks that aid in stopping wildfires that originate in adjacent vegetative types.

Management Emphasis

Emphasize a combination of wildlife habitat, visual quality, firewood production, watershed condition, and dispersed recreation with other resources and uses managed to be compatible.

Highlights include:

- Manage for the following indicator species:
  - Yellow bellied sapsucker
  - Mule deer
- Manage for VQO of Retention and Partial Retention in designated foreground areas, as specified in MA 3, and all VQO's in middleground and background.
- Manage firewood on a sustained-yield basis.

Program Components	**Activities**	**Standards and Guidelines**
		Visual Quality
Recreation		Review the VQO inventory as a part of project planning and make necessary refinements following the field checking.
		Clearcutting to enhance or maintain aspen in Retention and Partial Retention areas is permissible with limitations on size and distribution of openings. Clearcuts should be distributed over larger areas rather than confined to small areas. In Retention areas, openings may be up to 2.5 acres in foreground areas, 5 acres in middleground areas, and 20 acres in background areas. In Partial Retention areas, openings may be up to 15 acres in foreground areas, and 40 acres in middleground and background areas.
		Structural Wildlife Habitat Improvements
Wildlife		Fence to protect aspen regeneration from grazing or wildlife where necessary.
		Range Resource Planning and Inventory
Range		Grazing allotments are generally managed at Level C or D. There are 3,864 acres of full capacity lands, all in satisfactory condition.

Program Components	**Activities**	**Standards and Guidelines**
		Manage aspen regeneration stands to limit aspen sprout consumption by grazing to 20 percent or less of current year's growth.
		Where water facilities are provided inside aspen stands, pipe water to areas outsidethe stand to maintain distribution of livestock and wildlife. This is to be done during reconstruction of the structural facility where feasible.
		Reforestation
Timber		Regeneration is planned to occur naturally by sprouting. Artificial regeneration may be needed when clonal root systems have died or have been destroyed.
		Protect regenerated areas and assign no grazing capacity until seedlings are established. Protect areas or a group of areas by excluding grazing through fencing, or other means where appropriate. If funding is not available for needed protection, do not harvest the area(s).
		Integrated Stand Management (ISM)
		Establish and maintain stand diversity through ISM to provide suitable habitat forwildlife, while maintaining or enhancing firewood production, age class distribution, and sustained-yield of firewood.
		Silvicultural Prescription
		Stands are managed by either even-aged or uneven-aged systems depending on theobjectives and existing condition of the stand. Rotation length is a minimum of **90 years**. Minimum average stand diameter at regeneration is **11 inches**. Minimum stand size for management is 5 acres except in foreground Retention (see A2 above). Combining adjacent stands to create a larger more manageable stand is acceptable.
		Following firewood harvest treatments, other silvicultural treatments may be used to obtain natural regeneration including prescribed burning, girdling, disking, severing roots, and herbicide treatments when legally available, environmentally sound and most cost-efficient. Natural sexual reproduction also is possible, although not common.
		Retain snags greater than 12 inches d.b.h. and nest trees. Follow snag Standards and Guidelines as shown in MA 3.
		The timing of regeneration treatments varies depending on local site qualities, silvicultural objectives, and other resource objectives. Generally, harvest from August 15 to May 15 in order to maximize sprouting.

Program Components	**Activities**	**Standards and Guidelines**
		Treatment areas are usually less than 40 acres in size with emphasis to cut a series of small areas (2.5 to 10 acres) rather than one large, continuous harvest area.
		Harvest treatments are usually accomplished through personal-use firewood sales or commercial firewood sales. Commercial firewood sales may be planned in areas where general public access is not reasonable.
		Timber Sale Preparation and Administration
		Sale preparation and administration minimize the amount of roads, spur trails, and landings located within the harvest area. Project administration will also emphasize minimal damage to designated leave trees during treatment activities. Roads that are not planned to be kept open are closed following harvest.
		Fuel treatments are implemented that favor aspen regeneration and have the least impact on the site, meet other multiple-use needs, and are cost effective. Slash is treated or not treated to meet timber objectives for regeneration.
		Fire Management Planning and Analysis
Protection		Prescribed fire using planned and unplanned ignitions is used to meet resource objectives. Suppression objective is to hold fires to 100 acres or less.
		Unplanned ignitions are not used as a management tool in the urban interface.

Unproductive Timber Land - Management Area 6

Analysis Areas: 15, 16
Acres: 67,146

Unproductive timber lands are within the ponderosa pine vegetation types. They are unsuitable for timber harvest because they fall in at least one of the following two categories.

- They do not meet the minimum standards for productivity which is Site Index 40 and/or 20 cubic feet per acre per year.
- There is not reasonable assurance that such lands can be adequately restocked as required by section 219.27(c)(13) of the planning regulations.

Management Emphasis

Emphasize a combination of wildlife habitat, watershed condition, and livestock grazing. Other resources are managed in harmony with the emphasized resources.

Highlights include:

- Manage for the following indicator species:
  - Elk
  - Abert Squirrel
  - Mule Deer
  - Hairy Woodpecker
- Use prescribed fire as a tool to help meet desired resource objectives.
- Visual Quality Objectives (VQO) are managed in accordance with the Forest-wide Standards and Guidelines

Program Components	**Activities**	**Standards and Guidelines**
		Range Resource Planning and Inventory
Range		Grazing allotments are generally managed at the C or D level. Full capacity lands are assigned a grazing capacity. There are 74,651 acres of full capacity lands. Of this total acreage, 4,628 acres are in less than satisfactory condition. Less than satisfactory range conditions are improved through completing the development program contained in the AMP.
		Range Forage Improvement
		Conduct an analysis immediately following natural and/or prescribed burns to determine the potential and need for broadcast seeding. Based on positive analysis results, increase forage production by attaining a balanced composition of cool and warm season forage species by broadcast seeding immediately following natural and/or prescribed burns.
		Where an open meadow is maintained, as determined in an environmental analysis, eliminate invading overstory vegetation, stabilize gullies to raise the water table, and seed with appropriate grass and forage species. Control livestock grazing through management and/or fencing to allow for adequate revegetation.
		Identify each terrestrial ecosystem and assess soil properties to determine: ➢ Soil limitations for soil scarification purposes. ➢ The method of soil scarification best suited for the soils of the project area. ➢ Soil potential for revegetation - Identify soils that are suitable or unsuitable for successful revegetation, ➢ Erosion hazard, and on-site soil loss - Soils with a potential erosion hazard rating of severe will require specific resource management activities in order to avoid severe impairment of soil productivity.
		Reforestation
Timber		Reforestation is limited to administrative study areas for the purpose of finding successful methods and will be conducted according to an administrative study plan.
		Lands not suited for timber production are examined at least every 10 years to determine if they have become suited.
		During the first decade, identify each terrestrial ecosystem and assess soil properties to determine: ➢ Whether soils are suitable, unsuitable, or unproductive for timber management. Provide detailed soils input to administrative study plans for reforestation.

Program
Components Activities Standards and Guidelines

Silvicultural Examination and Prescription

Implement Integrated Stand Management (ISM) to benefit other resources and to aid in Forest-wide monitoring.

Evaluate stand conditions, including insect and disease, and the health and vigor of stands.

Maintain diversity of tree species so that ponderosa pine, Gambel oak, and alligator juniper are maintained as a component of the vegetation where they are now present.

Snag Management:

Where necessary to meet multiple-use objectives, harvest recent dead and poor risk ponderosa pine in areas having excess snag densities and adequate recruitment for future snags. This may also be done where habitat evaluation indicates a surplus of snags and there is a determination that harvest will not cause future snag densities to fall below desired densities or cause other adverse effects on habitat.

Alligator Juniper:

Manage alligator juniper to maintain and enhance wildlife habitat by the following criteria:

- In areas where alligator juniper trees comprise less than 50 percent of the total basal area, retain live alligator juniper trees $\geq$ 12 inches d.b.h.
- In areas where alligator juniper trees comprise more than 50 percent of the total basal area, live trees $\geq$ 12 inches d.b.h. may be removed if < 25 percent of the crown is living.

In both of the above cases, some live trees $\leq$ 12 inches d.b.h. may be removed. Retain at least 40 percent of the trees $\leq$ 12 inches.

Turkey Habitat:

Manage to retain and/or develop an average of at least four turkey roost tree groups per section in identified turkey winter range.

Fire Management Planning and Analysis

Protection

01Suppression objective is to minimize cost and provide for personal safety.

Areas mapped as the urban interface have a suppression objective of 10 acres or less. In areas outside of the urban interface, the suppression objective is to hold fires to 100 acres or less. Prescribed fire using planned and unplanned ignitions is used to accomplish resource objectives except no provision for unplanned ignitions in areas included in urban interface.

Piñon-Juniper Woodland, Less Than 40 Percent Slopes - Management Area 7

Analysis Areas: 17, 18, 19
Acres: 273,815

The pinyon-juniper woodland is comprised of an overstory of pinyon pine, Utah juniper, and one-seed juniper with a small portion of alligator juniper and Rocky Mountain juniper. There is a wide variety of grass, forbs, and shrubs in the understory.

Traditional uses have included hunting, firewood cutting, pinyon nut gathering, Christmas tree and juniper post cutting, big game winter range, and grazing. There are many two-track roads through the area.

Fire occurrence is low and potential for large fires is low. Ground fuels are less than 5 tons per acre except in stands that have been harvested for firewood.

The local public prefers juniper over pinyon for firewood.

The area contains a large number of archaeological sites.

Management Emphasis

Emphasize firewood production, watershed condition, wildlife habitat, and livestock grazing. Other resources are managed in harmony with the emphasized resources.

Highlights include:

- Manage the pinyon-juniper on a sustained-yield basis for firewood and miscellaneous convertible products, on 0-15 percent slopes.
- Wildlife habitat management emphasizes forage production on 0 to 15 percent slopes, in conjunction with firewood harvest using Integrated Stand Management (ISM). Old-growth, cover, and snags are generally provided on slopes greater than 15 percent. However, exceptions will occur if dispersion requirements for habitat components are not met on these steep slopes. Where necessary to meet 10K Block requirements or specific habitat needs, one or more of these components can be obtained through management emphasis on the gentler slopes.
- Manage for the following indicator species:
  - Plain titmouse
  - Mule deer
  - Elk
- Use prescribed fire to help achieve resource objectives.

- Manage for the visual quality objectives outlined in the Forest Visual Resource Management inventory and in the Forest-wide Standards and Guidelines, including a configuration and design of opening which is consistent with the characteristic landscape.
- Palatable grass and forb species may be seeded.

Program

Components	**Activities**	**Standards and Guidelines**
		Wildlife Structural Improvements
Wildlife and Fish		Provide water where needed on key wildlife winter ranges. Use bubblers or other means to prevent freezing, where needed.
		Wildlife Nonstructural Improvements
		Areas needing additional forage for elk and mule deer are given first priority in scheduling firewood/wildlife habitat treatments. Treatments are usually done in areas remote from intensive development and high road densities.

Program Components	**Activities**	**Standards and Guidelines**
		Range Resource Planning and Inventory
Range		Grazing allotments will generally be managed at Level C or D. Full capacity lands are assigned a grazing capacity. There are 227,601 acres of full capacity lands, of which 29,702 acres are in less than satisfactory condition. Less than satisfactory range conditions will be improved through completion of the range development program outlined in the AMP.
		Range Forage Improvement Maintenance
		Conduct an analysis immediately following natural or prescribed burns to determine the potential and need for broadcast seeding. Based on a positive analysis, broadcast seed immediately following natural or prescribed burns with a warm and cool season seed mix to increase production for the site. This is done where necessary based upon the Burned Area Rehabilitation Handbook.
		Evaluate and determine the need to maintain forage improvement acres in satisfactory or better condition.
		Some acres have been mechanically treated by using heavy equipment to remove individual trees, or "pushing," "chaining," or "cabling" as the practice is called. A portion of these lands have very low potential for revegetation and are allowed to proceed towards climax stage. In some areas other low density canopy lands with a higher potential for revegetation are rotated into management as seral grasslands if an environmental analysis indicates.
		Pinyon-juniper woodlands that have not been previously treated, but are in the 0-10 percent canopy cover class as a result of past fire and subsequent successional development, are evaluated through the environmental analysis process to determine if they are included among lands maintained as seral grasslands. The criteria used for physical/biological suitability are the rating of soil potential for revegetation and the erosion potential as outlined in the Terrestrial Ecosystems Survey Handbook (TESH, January 7, 1985).
		Lands showing a low potential for revegetation are not retreated to maintain a seral state. Lands suitable for revegetation to grasslands and determined to be desirable through the environmental analysis are put on the 25-year average retreatment schedule.
		Where seral grasslands are maintained in the pinyon-juniper woodland, eliminate invading vegetation through mechanical, chemical, or planned fire treatments on a maintenance schedule averaging once every 25 years. Consider firewood harvesting and Christmas tree harvesting as tree removal methods. Stabilize gullies, scarify the soil, and seed disturbed soils with a mix tailored for the site, emphasizing high production, shade

Program Components	**Activities**	**Standards and Guidelines**
		tolerant, and multi-growing season species. Seed suitable areas in all range condition classes if needed. Control livestock grazing through management and/or fencing to allow for adequate revegetation. Terrestrial ecosystems are identified and soil properties are assessed to determine: ➢ Soil limitations for soil scarification purposes. ➢ The method of soil scarification best suited for the soils of the project area. ➢ Soil potential for revegetation - Identify soils that are suitable or unsuitable for successful revegetation. ➢ Erosion hazard and on-site soil loss - Soils with a potential erosion hazard rating of severe will require specific resource management activities in order to avoid severe impairment of soil productivity.
		Range Forage Improvement On pinyon-juniper lands managed for firewood production where firewood harvesting has taken place, **lopping and scattering of slash may be used** to create a more moist microclimate. Seed harvested areas with selected forage and browse species. Allow slash to become dry and brittle. Slash may be crushed where it adversely affects livestock and/or wildlife movement. Areas may be reseeded prior to crushing. This series of events takes place over a 1-2 year time span. Approximately 1,490 acres are cut for firewood per year. Grazing takes place following cutting to use the transitional range. A second entry to these sites is made approximately 15 years later to remove excess stocking of woodland regeneration and selected seed trees. No range nonstructural improvement practices will be implemented until the next firewood harvest.
		Integrated Stand Management (ISM)
Timber		Establish and maintain stand diversity through ISM to provide suitable habitat for wildlife while maintaining or enhancing firewood production and age class distribution (regulation).
		Bear Habitat: Evaluate bear habitat needs during project planning in dense pinyon-juniper, areas adjacent to steep pinyon-juniper, or pinyon-juniper associated with chaparral species.
		Old-Growth: Stand size is between 100 and 300 acres and ≥ 5 chains wide, or closely grouped stands that provide contiguous habitat for interior-dwelling species.

Program
Components Activities Standards and Guidelines

Stand Size

Same as ponderosa pine/mixed conifer criteria, see MA 3.

Silvicultural Prescription

Develop projects using the following criteria, that ensure perpetuation of the woodland vegetation type and to maintain wildlife habitat:

- Created openings in areas that have been identified as historic big game winter range are designed so that an animal will be no more than 10 chains (660 feet) from hiding cover at any location within the opening.
- Harvested areas are separated from adjacent areas by at least an 8 chain wide untreated strip.
- Cover corridors are laid out to connect treated areas or breaks in terrain to provide interconnecting cover corridors. Known or suspected routes of game travel are used to lay out cover corridors. Corridors are managed to create at least 60 percent crown cover, and are at least 8 chains wide.
- Use steep, rocky, or otherwise unmanaged areas useable by game to satisfy wildlife cover requirements to the extent possible (MA 8). Cover requirements are considered on a 10K Block basis.
- At least 20 percent of the area within a 20 chain zone adjacent to pine stringers is managed for dense mature or overmature stands of pinyon/juniper. Gambel oak in these zones is managed to increase mast production.
- If operable ground extends to the edge of a sharp break in terrain, such as a deep, steep canyon or bluff, leave an untreated strip along the break, a minimum of 3 to 8 chains wide on at least 20 percent of the break, varied to fit the country, character, and density of the stand. The same treatment is given to toes of slope breaks in terrain.
- Lay out projects to appear as natural configurations of the woodland.
- There are usually 30 years difference between regeneration of any two adjoining stands. Manage to achieve where possible not more than one-quarter of a stand's perimeter in common with an adjacent stand whose ages vary by less than 30 years.
- Harvesting firewood for sustained production is done only on sites meeting minimum regeneration criteria or as a method to prepare sites for subsequent regeneration.

Program
Components Activities Standards and Guidelines

- Unwanted, merchantable trees are disposed of through firewood sales on projects where tree removal is necessary. Large projects may need 3 years for disposal of trees by this method.
- Where slash suitable for firewood is piled for burning, there is at least 2 years free-use firewood salvage before burning piles.
- There is no firewood cutting in sensitive big game winter range from November 30 to April 15.
- Microenvironment of some sites may warrant lopping or scattering created slash to improve regeneration success and forage production.
- An average of three unburned piles per acre are left on areas with piled slash to provide cover for birds and small animals or leave lopped and scattered slash on 30 percent of treatment area.
- Manage for at least 30 percent cover.
- Emphasize cover management in travelways, bedding areas, reproductive areas, and adjacent to dependable waters and key openings.
- Cover is managed to provide at least 60 percent crown cover and at least 8 chains wide. Manage for hiding and thermal cover in known fawning and calving areas.
- Manage for small game and nongame by leaving an average of one slash pile per 3 acres in the woodland type and/or leave lopped and scattered slash on 30 percent of area harvested.
- Manage for at least an average of 1.0 snag per acre on 40 percent of the pinyon-juniper woodland acres in each 10K Block. Snags are at least 9-inch d.r.c. and at least 10 feet high.

Shelterwood --

- Natural regeneration is planned during the regeneration period. No planting is done. Site preparation in conjunction with good seed crops (3-7 years for pinyon) may be done.
- Intermediate cuts are designed to increase forage and wood fiber production.
- Preparatory cuts are done as needed to prepare the stand for regeneration.
- Seed cut is designed to leave a minimum of 20 to 50 trees/acre, depending on the amount of advanced regeneration present and the tree species mix desired. The number of residual trees is increased by 20 percent in areas to be managed for Christmas tree production.
- Final removal is done when seedlings are established and certified. Average rotation length is 180 years.
- Slash is lopped and scattered during regeneration.

Clear Cuts --

- Clearcuts may also be used, particularly when regeneration of alligator juniper is desired. Average rotation length is 180 years.
- Firewood harvests cut small patches of trees not to exceed 40 acres in size. The Regional Forester may approve cut areas greater than 40 acre.

Unevenage --

- Uneven-aged systems may also be used. Regeneration may be more certain with the single tree selection method.

Program
Components Activities Standards and Guidelines

Alligator Juniper:

Alligator juniper is managed primarily for maintaining and enhancing wildlife habitat by the following criteria:

- In areas where alligator juniper trees comprise less than 50 percent of the total basal area, retain live alligator juniper trees ≥ 12 inches d.b.h.
- In areas where alligator juniper trees comprise more than 50 percent of the total basal area, live trees ≥ 12 inches d.b.h. may be removed if < 25 percent of the crown is living.
- In both of the above cases, some live trees ≤ 12 inches d.b.h. may be removed. Retain at least 40 percent of the trees.

Pine Stringers:

Pine stringers are noncontiguous, narrow communities of predominantly ponderosa pine that extend into the pinyon-juniper woodland below the normal elevational distribution of ponderosa pine. Manage pine stringers to emphasize wildlife habitat needs by maintaining turkey roosts and big game cover.

Visual Management

Foreground Retention and foreground Partial Retention treatment follow these Guidelines:

- Landform and soil help determine where an area may be cleared. Rocky ridges left and gentle drainages cleared, or rocky ridges and slopes may be cleared and rough drainages left alone.
- Roads, fences, or survey lines may be used as stand boundaries, where they help to create irregular shapes in character with the surrounding landscape. However, in most cases, fences and survey lines are in straight lines and are not irregular.
- Avoid treatment patterns that present a "farmed" or humanmade appearance.
- Retain the natural aspect of the original vegetative type. Practice "vegetative manipulation" rather than "type conversion."
- Feather edges of treatments.
- Leave islands or peninsulas in treated areas.

Timber Sale Preparation

Complete sale planning, sale design, sale area layout and designation, and sale package preparation. Appraise, advertise, open bid, and make sale awards on sales scheduled for the planning period. Give preference to personal-use over commercial firewood sales in areas where demand exceeds, or is expected to exceed, supply. Generally schedule commercial sales in areas remote from communities and major travel routes.

Program Components	**Activities**	**Standards and Guidelines**
		Restrict firewood harvest and hauling to soil moisture conditions that do not cause excessive soil compaction, displacement, or puddling.
		For each project area, identify each terrestrial ecosystem and assess soil properties to determine: ➢ Soil potential for reforestation - Identify soils that are suitable or unsuitable for successful reforestation. ➢ Soils that contain undesirable soil properties that determine regeneration or revegetation in an area as being difficult.
	Timber Harvest Administration	Administer contracts and permits for forest products, firewood, and miscellaneous forest products sales. This activity includes accountability, financial management, inspections, contract interpretation, and enforcement.
	Fire Management Planning and Analysis	
Protection		Suppression objective is to minimize cost and provide for personnel safety. Areas mapped as urban interface have a suppression objective of 10 acres or less. In areas outside the urban interface, the suppression objective is to hold fires to 1,000 acres or less.
		Prescribed fire using planned and unplanned ignitions is used to accomplish resource objectives except no provision for unplanned ignitions in areas included in urban interface.
		Emphasize using slash for firewood. Unless there are documented resource or protection needs, leave slash for at least 2 years before disposal. Clearly identify free-use firewood areas to assist the public in removing wood residues and thereby reducing future slash disposal costs. Provide easy to follow maps and signing for designated firewood areas.

Pinyon-Juniper Woodland, Greater Than 40 Percent Slopes - Management Area 8

Analysis Area: 20
Acres: 19,077

This area includes the pinyon-juniper woodlands on slopes over 40 percent. The description is the same as MA 7. Steep canyons and volcanic slopes make the area unsuitable for many uses such as firewood cutting and some kinds of recreation.

Most of the area is old-growth because it has not been cut and fire has been excluded.

Management Emphasis

Emphasize wildlife habitat, watershed condition, and dispersed recreation.

Management intensity is low.

Highlights include:

- Manage for the following indicator species:
  - Plain titmouse
  - Mule deer
  - Elk
- Manage Visual Quality Objectives (VQO) in accordance with the Forest-wide Standards and Guidelines. VQO's vary significantly in this MA

Program Components	**Activities**	**Standards and Guidelines**
		Wildlife Structural Improvements
Wildlife and Fish		During winter months in key wildlife winter ranges provide water where needed using bubblers to prevent freezing.
		Range Planning and Inventory
Range		The area is classified as no capacity range. The area generally is not fenced, so occasional livestock use does occur.
		Integrated Stand Management
Timber		The area is not managed for forest products. Timber activities take place only where needed to achieve management of other resources.
		Bear Habitat:
		Evaluate bear habitat needs during project planning
		Fire Management Planning and Analysis
Protection		Suppression objective 250 acres or less except where included in urban interface.
		Prescribed fire using planned and unplanned ignitions is used to accomplish resource objectives except no provision for unplanned ignitions in areas included in urban interface.

Program
Components Activities Standards and Guidelines

Mountain Grassland - Management Area 9

Analysis Area: 25
Acres: 9,049

Laying in a patchwork across the Colorado Plateau, the mountain grasslands are meadows varying in size from just a few acres to well over 1,000 acres. Natural meadows are located in frost pockets or have soil or moisture conditions not conducive to conifer growth. A wide variety of species of grasses and forbs characterize the vegetation which varies according to soil moisture and temperature. The grasslands contain some riparian areas too small to be mapped. Riparian areas are managed by the Standards and Guidelines for MA 12.

The area is important to elk, turkey, and small mammals. Meadows provide vegetation diversity needed by wildlife.

The meadows provide opportunities for breathtaking views and are themselves a highly attractive visual resource.

In some areas, the meadows are dwindling through channel erosion and subsequent dropping of the water table. This results in encroachment by conifers and other species. As the grasslands shrink, forage for wildlife and livestock is reduced and visual quality declines.

Management Emphasis

Emphasize livestock grazing, visual quality, and wildlife habitat. Other resources are managed in harmony with emphasized resources. The smaller mountain meadows in remote areas are managed mostly for wildlife habitat, especially for elk summer range.

Highlights include:

- Manage for the following indicator species:
  - Antelope
  - Elk
- Manage Visual Quality Objectives (VQO) in accordance with the Forest-wide Standards and Guidelines. VQO's vary significantly in this MA.

Program Components	**Activities**	**Standards and Guidelines**
		Recreation Planning and Inventory
Recreation		Manage for VQO's of Partial Retention and Modification, with portions adjacent to major travel routes managed as foreground Retention.
		Closely monitor off-road driving. If damage is occurring or becomes imminent, apply and enforce appropriate restrictions, (see Forest-wide Standards and Guidelines - Recreation program component, for criteria).
		Focus media attention on off-road driving damage in these sensitive areas at least annually.
		Nonstructural Wildlife Habitat Improvements
Wildlife and Fish		Evaluate in the first decade the need to maintain and improve meadows by eliminating competing conifers, stabilizing gullies to restore water tables, and reseeding with species desirable to wildlife.
		Structural Wildlife Habitat Improvements
		Evaluate need and, where necessary, construct fences to protect key meadows from grazing.
		When springs are developed in meadow communities, riparian areas, or other sensitive areas, protect these areas by piping the water to water developments in adjacent, less sensitive areas.

Program Components	**Activities**	**Standards and Guidelines**
		Range Resource Planning and Inventory
Range		Grazing allotments are generally managed at the D level. Full capacity are lands assigned a grazing capacity. There are 8,824 acres of full capacity land; of this total, 947 acres are in less than satisfactory condition. Less than satisfactory range conditions will be improved through completion of the development program in the respective AMP's.
		Range Forage Improvement
		Maintain existing mountain meadows by removing invading overstory by cutting or other methods, gully stabilization to raise the water table, soil scarification, and seeding with appropriate grass and forage species.
		Control livestock grazing by management and/or fencing to allow adequate regeneration of grasses and forbs.
		Increase forage production by attaining a balanced composition of cool and warm season forage species.
		Water Resources Planning
Watershed/Soils/air		Manage mountain grasslands to achieve 90 percent of potential ground cover to prevent accelerated surface erosion and gully formation. Areas that presently do not meet these standards are scarified and seeded to bring ground cover to the desired level by the second decade. Restricting livestock may be necessary until revegetation.
		Identify each terrestrial ecosystem and assess soil properties to determine: ➢ Soil limitations for soil scarification purposes. The method of soil scarification best suited for the soils of the project area. ➢ Soil potential for revegetation - Identify soils that are suitable or unsuitable for successful revegetation, erosion hazard, and on-site soil loss. Soils with a potential erosion hazard rating of severe will require specific resource management activities in order to avoid severe impairment of soil productivity.
		In areas capable of supporting woody riparian species, maintain and/or improve these species to standards in the Regional Guide, August 1983.
		Plan and implement cost effective stream channel restoration projects to raise the water table in meadow areas where channel erosion has resulted in a lowering of the water table.
		Road Maintenance and Management
Transportation		Generally, avoid construction of new roads. Relocate and reconstruct around this roads around this MA whenever possible.

Program Components	**Activities**	**Standards and Guidelines**
		Fire Management Planning and Analysis
Protection		Suppression objective is to minimize suppression costs and provide for personnel safety. Suppression objective of 10 acres or less in areas mapped as urban interface. In areas outside the urban interface the suppression objective is to hold fires to 100 acres or less. Suppression methods are chosen to minimize damage to the resource. Prescribed fire using planned and unplanned ignitions is used to accomplish resource objectives except no provision for unplanned ignitions in areas included in urban interface.

Grassland and Sparse Piñon-Juniper Above the Rim - Management Area 10

Analysis Areas 26, 27
Acres: 160,494

This area is made up of the grasslands and pinyon-juniper with less than 10 percent cover above the Mogollon Rim and a small portion of the transition zone (ecotone) between ponderosa pine and pinyon-juniper, primarily on Anderson Mesa. The area includes a few stringers of ponderosa pine and ecotones between grass and pinyon-juniper lands. The majority of the area is pinyon-juniper that has been treated and is in the seral grassland stage.

Fuel loading and fire danger are low. The area is important wildlife winter range, as well as year long antelope range, and is used primarily as grazing land for both livestock and wildlife.

Management Emphasis

Emphasize range management, watershed condition, and wildlife habitat. Other resources are managed to improve outputs and quality. Emphasis is on prescribed burning to achieve management objectives. Walnut Canyon National Monument entrance road is within this MA. The management and use of the 1000 foot right-of-way along the entrance road is directed toward the protection and maintenance of the cultural and natural resources of the area.

Highlights include:

- Manage for the following indicator species:
  - Antelope
- Manage Visual Quality Objectives (VQO) in accordance with the Forest-wide Standards and Guidelines. VQO's vary significantly in this MA.
- Enforcement of the management restrictions and the day to day administration of the Monument entrance is the responsibility of the Park Service, as is the maintenance of the facilities. Major changes in the development, construction, or initiation of resource management projects are coordinated between the Park Service and the Forest.

Program

Components Activities Standards and Guidelines

Program

Components Activities Standards and Guidelines

Recreation Planning and Inventory

Recreation

Walnut Canyon National Monument Entrance Road - (displayed on the MA map as MA 10, although as seen from road more closely resembles characteristics of MA 7).

- The VQO is foreground Retention.
- Roadside signing is a part of the visitor experience, and is of high quality. Signing, interpretive, informative, or regulatory is done in a positive manner.
- Speed limits are posted and maintained by the Park Service.
- The fenced boundary is signed as "National Forest Land Administered by the Park Service."
- The primary purpose of the roadway is access to the National Monument. Secondary uses are for public access to and from Forest Road 303 and adjacent Forest Lands.
- Picnicking, walking, hiking, and similar non-impacting uses are encouraged.
- Permit the gathering and collecting of edible plants, nuts, and berries for personal consumption.
- Vehicle traffic permitted only on designated roadways, with the exception of access to fences (for repair), for maintenance of utilities, traversing the right-of-way, and for stock management by permittees of the National Forest.
- The Park Service has the option to allow controlled firewood harvest by members of the public who have obtained personal-use permits from the Forest.
- The Forest and the Park Service cooperate together in fire suppression activities. A joint agreement is annually prepared to describe in detail the nature of the cooperation.
- Prescribed burning to reduce hazardous fuels is approved jointly by the Forest and the Park Service. Activities may be proposed by either agency.

Program

Components Activities Standards and Guidelines

- The sliver of land on the north side of the Monument separated by the FR 303 is difficult for the Park Service to manage, and the triangle west of the entrance road and east of the Monument is difficult for the Forest to manage. These lands are designated for transfer between the agencies.

Nonstructural Wildlife Habitat Improvement

Wildlife and Fish

Control invasion of undesirable plant species when necessary to improve and protect wildlife habitat values. Prescribed burning will be one specific practice used, especially where needed to improve wildlife habitat.

Structural Wildlife Habitat Improvements

During winter months in key wildlife winter ranges, provide water where possible, using bubblers or other methods to prevent freezing where needed.

Range Resource Planning and Inventory

Range

Manage grazing allotments generally at Levels D and E. Full capacity lands are assigned a grazing capacity. There are 123,435 acres of full capacity land; of these, 24,278 acres are in unsatisfactory range condition. Unsatisfactory range conditions will be improved through completion of the range development program in AMP's.

Range Forage Improvement Maintenance

Maintain a seral grassland state on pinyon-juniper lands where type conversions have occurred in the past, with the exception that corridors of cover for wildlife habitat, determined through environmental analysis, may be allowed to develop through regrowth of pinyon-juniper. Initiate a retreatment schedule of approximately 25 years. Retreatments are accomplished through one or all of the following methods (see Table 12):

- Individual tree pushing or cutting;
- Prescribed burning;
- Chemical treatments.

Depending upon plant composition and diversity, seed treated sites with a mix tailored to the site, emphasizing high production, multi-growing season species to achieve a balance between warm and cool season plants. The goal of retreatment is to maintain the seral grasslands in a savannah-like state that emphasizes a diversity of habitats to enhance forage for livestock and wildlife.

Program Components	**Activities**	**Standards and Guidelines**
		Some acres have been mechanically treated by using heavy equipment to removeindividual trees, or "pushing," "chaining," or "cabling" as the practice is called. A portion of these lands have very low potential for range revegetation and are allowed to proceed towards climax stage. Other low density canopy lands with a higher potential for revegetation are rotated into management as seral grasslands insome areas if an environmental analysis indicates. Pinyon-juniper woodlands that have not been previously treated, but are in the 0 to 10 percent canopy cover class as a result of past fire and subsequent successional development, are evaluated through the environmental analysis process to determine if they are included among lands maintained as seral grasslands. The criteria used for physical/biological suitability are the rating of soil potential for revegetation and the erosion potential as outlined in the Terrestrial EcosystemsSurvey Handbook (TESH, January 7, 1985). Identify terrestrial ecosystems and assess soil properties to determine: ➢ Soil limitations for soil scarification purposes. ➢ The method of soil scarification best suited for the soils of the project area. ➢ Soil potential for revegetation - Identify soils that are suitable or unsuitable for successful revegetation. ➢ Erosion hazard and on-site soil loss - Soils with a potential erosion hazard rating of severe will require specific resource management activities in order to avoid severe impairment of soil productivity.
		Fire Management Planning and Analysis
Protection		Suppression objective is to minimize cost and provide for personnel safety. Suppression objective is 10 acres or less in areas mapped as the urban interface. In areas outside urban interface, the suppression objective is to hold fire to 1,000 acres or less. Prescribed fire using planned and unplanned ignitions is used to accomplish resource objectives except no provision for unplanned ignitions in areas included in urban interface.

Program

Components **Activities** **Standards and Guidelines**

Verde Valley - Management Area 11

Analysis Areas: 28, 29
Acres: 169,529

The Verde River is an important feature of the Verde Valley and is covered by Standards and Guidelines in MA's 2 and 12. It is because of the Verde River that the Verde Valley is an unusual kind of ecosystem in Arizona. The Valley shares other characteristics with similar country at the same elevations and with a similar climate, but it has been the Verde River and the lower portion of Oak Creek, Beaver Creek, and West Clear Creek that have attracted people and wildlife to the Valley since prehistoric times. The prehistory of the area is one of the richest in the United States. That the Valley has been inhabited for centuries is clearly evidenced by the abundance of ruins of prehistoric dwellings. Good forage for wildlife also attracted people and their domestic livestock. The Valley was chosen as an early cavalry post because of the abundance of forage.

In more recent times, people have migrated to the area because of the mild climate with winter temperatures ranging from low teens to mid 50's and summertime temperatures from the low 50's to 110oF. Precipitation ranges between 12 to 16 inches per year. Vegetation includes pinyon-juniper woodland, Arizona Cypress groves, grass, and desert vegetation types including black grama-tobosa grasslands, creosotebush, and mesquite. There are chaparral species, seral grasslands, and Canotia.

Management Emphasis

Emphasize watershed condition, range management, wildlife habitat for upland game birds, and dispersed recreation.

Highlights include:

- Manage for the following indicator species:
  - Antelope
- Manage visual Quality Objectives (VQO) in accordance with the Forest-wide Standards and Guidelines. VQO's vary significantly within this MA.

Program Components	**Activities**	**Standards and Guidelines**
		Recreation Planning and Inventory
Recreation		Verde Valley is managed for dispersed recreation along the upper Verde River outside the Wild and Scenic section and along lower Oak Creek. Coordinate management of areas adjacent to, and clearly visible from, the portion of the Verde River classified as Wild and Scenic with the Verde River Implementation Plan. Place special emphasis on maintaining ROS class compatible with management and use of the Wild and Scenic River.
		Coordinate with Dead Horse State Park for connecting trails and access roads adjacent to the Park. These trails/roads are consistent with more complete service to the public and other resource management support.
		Manage the segment of West Clear Creek downstream from the wilderness to Clear Creek Campground and the segment of Wet Beaver Creek downstream from the wilderness to the private land boundary at the section line between sections 22 and 23, T. 15N., R. 6E. to maintain their free flowing status and their scenic and recreational values. Manage to avoid impacts that would disqualify them from future study and possible designation as scenic, recreational, or other equivalent classification. Evaluate activities and proposed developments that are visible from or that could affect the physical character or ROS class through the environmental analysis process. Proposed developments evaluated in this manner include, but are not limited to, impoundments and new water diversions (unless directed otherwise by legislation), developed recreation sites, and road building. Manage livestock grazing and vehicular access to maintain ROS class and recreation/scenic values.
		Habitat Access Controlled by Closures
Wildlife		Access likely to cause disturbance is prohibited in the vicinity of nesting bald eagles between December 1 and June 15 (Closure Order 16-52, October 23, 1984). If eagles occupy a nest territory earlier or later, the closure period may be lengthened or shortened.

Program Components	**Activities**	**Standards and Guidelines**
		Nonstructural Wildlife Habitat Improvement
		Determine the need to control invasion of undesirable plant species in antelope range to improve and protect wildlife habitat values. Where necessary, implement the control measures, such as prescribed burning to improve antelope habitat. Range Resource Planning and Inventory
		Range Resource Planning and Inventory
Range		Grazing allotments are generally managed at Levels C, D, and E. Full capacity lands are assigned a grazing capacity. There are 159,396 acres of full capacity range. Within the full capacity acreage, there are 41,602 acres of less than satisfactory lands. Less than satisfactory range conditions will be improved through range management or development program contained in the AMP's.
		Range Forage Improvement Maintenance
		Broadcast seed immediately following natural or planned burns when an adequate seed source is not available with a warm and cool season seed mix to increased production for the site. This is done where necessary based upon the Burned Area Emergency Rehabilitation Handbook, FSH 2509.13.
		Evaluate and determine the need to maintain forage improvement acres in satisfactory or better condition.
		Some acres have been mechanically treated by using heavy equipment to remove individual trees, or "pushing," "chaining," or "cabling" as the practice is called. A portion of these lands have very low potential for revegetation and are allowed to proceed towards climax stage. Other low density canopy lands with a higher potential for revegetation are rotated into management as seral grasslands in some areas if an environmental analysis indicates.
		Where seral grasslands are maintained as pinyon-juniper woodland, eliminate invading vegetation through mechanical, chemical, and prescribed fire treatments on a maintenance schedule averaging once every 25 years.
		Stabilize gullies, scarify the soil, and seed disturbed soils species mix tailored for the site, emphasizing high production, shade tolerant, and multi-growing season species. Control livestock grazing through management and/or fencing to allow for adequate revegetation.
		Range Forage Improvement
		On desert scrub lands with overstories of mesquite, catclaw, Canotia, manzanita, and turbinella oak, vegetative treatments may be planned to take place. Sites are reviewed for soil potential for revegetation and erosion potential as outlined in the Terrestrial Ecosystems Surveys Handbook (TESH January 7, 1985).

Program Components	**Activities**	**Standards and Guidelines**
		Identify terrestrial ecosystems and assess soil properties to determine: ➢ Soil limitations for soil scarification purposes. ➢ The method of soil scarification best suited for the soils of the project area. ➢ Soil potential for revegetation - Identify soils that are suitable or unsuitable for successful revegetation. ➢ Erosion hazard and on-site soil loss - Soils with a potential erosion hazard rating of severe will require specific resource management activities in order to avoid severe impairment of soil productivity. Treatments suitable for each species are used to convert sites to a lower successional and more productive state. Seed treated sites emphasizing a balance between warm and cool season growers.
		Water Resources Planning
Watershed/Soil/Air		Where watershed condition is unsatisfactory plan, design, and implement projects by the end of the second decade following watershed condition inventory and subsequent prioritization. Evaluate soils to determine suitable species that would provide maximum soil stabilizing benefits on each of the various soil parent materials. Establish a cost effective monitoring program to determine trends in watershed condition.
		Silvicultural Examination and Prescription
Timber		Evaluate lands to identify those areas that may meet suitability standards for miscellaneous forest products by the end of the second decade. Complete a minimum of 30 percent of identification in Decade 1. Plan, prepare, administer, and sell or issue permits for commercial and personal-use miscellaneous convertible and nonconvertible products as requested by other resources (FSM 2462).
		Land Exchange
Special Uses/Lands		**Text was superceded by Amendment 12, see pages 206-20 and 206-21.**

Program Components	**Activities**	**Standards and Guidelines**
		Fire Management Planning and Analysis
Protection		Suppression objective is to minimize cost and provide for personnel safety except suppression objective is 10 acres or less in areas mapped as the urban interface. In areas outside the urban interface, the suppression objective is to hold fires to 1,000 acres or less.
		Prescribed fire using planned and unplanned ignitions is used to accomplish resource objectives except no provision for unplanned ignitions in areas included in urban interface.

Riparian and Open Water - Management Area 12

Analysis Areas: 32, 33
Acres: 20,490

Riparian areas are wetland ecosystems that have a high water table because they are close to surface or subsurface water. Riparian areas usually occur in the transition between aquatic and terrestrial ecosystems, but have distinct vegetation and soil characteristics.

There are eight types of riparian areas on the Forest:

- Intermittent streams
- Perennial streams
- Wet meadows
- Marshes
- Rivers
- Ponds
- Lakes
- Seeps and Springs

This management area includes both mapped riparian areas and riparian areas which were too small to be mapped as discrete units during the analysis process.

Riparian areas provide very important wildlife and fish habitat and recreation opportunity because of the water.

There are over sixty named lakes and wetlands in the area, including Mormon Lake and Stoneman Lake, the two largest natural lakes in Arizona.

Riparian areas are extremely variable due to different types of water bodies such as lakes, streams, and ponds. The characteristics of the area in which riparian areas occur such as gradient, topography, soil type, elevation, and plant communities also affect the area type. Each different type has associated vegetation that is characteristic.

Definition: Riparian ecosystems are distinguished by the presence of free water within the common rooting depth of native perennial plants during at least a portion of the growing season. Riparian ecosystems are normally associated with seeps, springs, streams, marshes, ponds, or lakes. The potential vegetation of these areas commonly includes a mixture of water (aquatic) and land (phreatic) ecosystems.

Riparian areas are critical for multiple-use management because:

- Riparian areas are generally more productive per acre of biomass (plants and animal) than other areas.
- They provide large amounts of edge between life zones which adds significantly to the diversity of an ecosystem.
- Different species and age classes provide vertical edge for wildlife species.

- The three basic requirements of wildlife habitat (food, cover, and water) are met.
- The fisheries resource is associated with this area.
- Topography, high productivity, easy availability, and the presence of water attract livestock and they tend to concentrate here. Riparian areas are highly sensitive to overgrazing.
- Scenic values are very high.
- Stream channels and associated riparian vegetation are fragile components of good watershed condition.
- Most of the developed campgrounds and picnic areas are in or directly adjacent to the riparian area. Dispersed recreationists concentrate in the area because of the water, visual quality, and shade trees.
- The topography generally provides for less expensive road construction and serves as convenient wildlife travel corridors. These uses are often in direct conflict.

Management Emphasis

Emphasize wildlife habitat, visual quality, fish habitat, and watershed condition on the wetlands, riparian forest, and riparian scrub. Emphasize dispersed recreation, including wildlife and fish recreation, on the open water portion.

An interdisciplinary team approach will be used on management activities such as timber sales, allotment management plans, and other management activities to prescribe specific management practices to meet the goal of riparian area recovery by 2030. Manage riparian areas based on the potential to support riparian vegetation. Potential is determined through a consensus of an interdisciplinary review. In order to achieve certain aspects of recovery, such as establishing three age classes of woody riparian vegetation, implementing riparian Standards and Guidelines occurs in the first decade. Riparian areas provide a filter strip of vegetation, important for filtering sediments generated from upslope soil erosion. Eighty percent of the riparian recovery is expected by 2030. The remaining 20 percent will be significantly improved, but will not have all of the characteristics of a fully recovered riparian area. The goals and objectives for elk populations and for livestock grazing affect achievement of the full recovery.

Highlights include:

- Improve riparian areas through a combination of improvement projects and management activities.
- Manage for the following indicator species:
  - Cinnamon teal
  - Lincoln's sparrow
  - Yellow breasted chat
  - Lucy's Warbler
  - Macroinvertebrates
  - Manage for visual quality objectives of Retention, Partial Retention, and Modification.

Program Components	**Activities**	**Standards and Guidelines**
		Recreation Planning and Inventory
Recreation		In the first decade develop specific management direction for open water areas on lakes and reservoirs having significant amount of over water recreation use, e.g., sailboating, motorboating, canoeing, fishing, and windsurfing. Consider, as a minimum, ROS class demand and distribution, wildlife and fisheries habitat needs, user safety and enjoyment, and cost-effectiveness of management practices. Coordinate with Arizona Game and Fish Department (AGFD) in this analysis. Where determined through environmental analysis, identify and implement specific management practices such as wakeless zones, traffic circulation patterns, presence and/or size of gasoline motors, and regulations on use of jet skis. Coordinate with AGFD in implementation.
		Do not issue outfitter/guide permits or permit use which causes significant change for the ROS social or managerial setting, e.g., airboats or seaplanes.
		Manage Stoneman Lake basin for dispersed day-use. Overnight camping in the basin is prohibited.
		M11 Contains additional management direction for a portion of West Clear Creek and Wet Beaver Creek.
		Wildlife Planning and Inventory
Wildlife and Fish		Complete inventory, survey, and evaluate riparian areas by end of first decade.
		Cooperate with AGFD to develop implementation schedules for Arizona Cold Water Fisheries Strategic Plan.
		The following applies to riparian areas, whether they are large enough to be mapped out or not. Wetlands and open water containing emergent vegetation which provide nesting habitat are protected from disturbing uses that will harass nesting birds, such as activities that are noisy or would damage nests or nesting habitat from May 1 to July 15.

Meet the following Riparian Standards in the Regional Guide for 80 percent of riparian areas above the Rim and 90 percent below the Rim by the year 2030:

- Maintain at least 80 percent of the potential overstory crown coverage.
- Maintain at least three age classes of woody riparian species, with at least 10 percent of the woody plant cover in sprouts, seedlings, and saplings.
- Maintain at least 80 percent of the potential stream shading from June to September along perennial cold and cool water streams.
- Maintain at least 80 percent of the potential shrub cover in high elevation areas.
- Maintain at least 80 percent of the potential emergent vegetation cover from May 1 to July 15 in key wetlands.
- Maintain at least 80 percent of the spawning gravel surface free of inorganic sediment.
- Maintain at least 80 percent of streambank total linear distance in stable condition.
- Retain snags in riparian areas that are not a safety hazard.

Measures such as fencing to exclude livestock, vegetation projects, and special management prescriptions will be undertaken until the affected areas are brought into satisfactory riparian condition.

In addition, the remainder of the Forest's riparian areas will have some of these characteristics, but not all of them by 2030.

Coordinate with other resource functions to pursue instream flow rights to protect aquatic ecosystems, fish, and wildlife.

Nonstructural Wildlife Habitat Improvements

Determine the need to rehabilitate riparian areas through seeding and planting woody species in areas that are in unsatisfactory condition, including those areas not mapped as discrete riparian areas, and then proceed to rehabilitate areas as determined. Attempt using unpalatable species where necessary to avoid wildlife browsing.

Maintain or improve nesting cover and waterfowl forage on existing waterfowl islands and shorelines. In conjunction with construction of waterfowl islands seed herbaceous species unpalatable to large herbivores.

Cooperate with Arizona Game and Fish Department on fish population control of aquatic plants and fish stocking to meet State fisheries management goals.

Program Components	**Activities**	**Standards and Guidelines**
		Structural Wildlife Habitat Improvements
		Construct 10 miles of fences per decade for the first two decades where necessary to protect key wet meadows, wetlands, and riparian regeneration from grazing.
		Construct 150 waterfowl islands per decade in Decades 2 and 3 and create potholes in wetland areas to provide nesting habitat.
		Maintain riparian and meadow communities by providing waters for wildlife and livestock away from these sensitive areas.
		Establish administrative exclosures the first decade to determine riparian vegetation potential on representative streams.
		Modify watershed improvement structures where possible to provide water for wildlife.
		Manage lakes and streams to improve fisheries habitat by constructing structures and barriers as appropriate based on environmental analysis and on professional judgment of the responsible official and resource specialist: ➢ Install 10 stream improvement projects on perennial streams in first decade; Improve fish habitat through placement of 200 cover structures on lake bottoms during the first decade; Create spawning habitat of 10 acres per year in lakes in the first decade.
		Range Resource Planning and Inventory
Range		Grazing allotments are generally managed at Levels C and D. There are 3,159 acres of full grazing capacity lands, of this total 484 acres are in less than satisfactory range condition that will be improved through completion of thedevelopment programs contained in the AMP's. AMP's are reviewed and, if necessary, amended by 1992 to contribute towards the achievement of satisfactory riparian condition.
		Salt is used to help achieve proper livestock grazing distribution. Permanent salt is not placed within 1/4 mile of the edge of any riparian area. Temporary salting may be approved if it will help to achieve a specific management objective for enhancement of riparian areas.
		Proper allowable use within MA 12 is not to exceed 20 percent on the woody vegetation.
		Stoneman Lake is fenced to exclude livestock grazing below the rim of the basin.

Program Components	**Activities**	**Standards and Guidelines**
		Range Forage Improvement
		Favor the establishment of woody riparian vegetation, where potential natural vegetation has been determined through an interdisciplinary process to include woody riparian species. Control livestock grazing through management and/or fencing to allow for adequate establishment of vegetation and the elimination of overuse. Evaluate seeding projects for effects on concentrating livestock use in riparian and other sensitive areas.
		Timber Harvest and Administration
Timber		Plan, prepare, administer, and sell or issue permits for commercial and personal use miscellaneous convertible and nonconvertible products such as firewood only as requested by other resources to achieve wildlife habitat, visual quality, public safety, or dispersed recreation objectives.
		Evaluate bear habitat needs during project planning. Defer logging activities from April 15 to June 30 in known bear maternity areas.
		No precommercial thinning or piling thinning slash in riparian areas or areas that have riparian characteristics.
		Water Resources Planning
Watershed/Soil/Air		Plan for suitable filter strips between streamcourses and disturbed areas and/or road locations. See Filter Strip Table in Forest-wide Standards and Guidelines under Watershed/Soil/Air, F2. Plan for suitable filter strips between stream courses and ground disturbing activities including roads.
		Water Resource Monitoring
		Cooperate with USDI Geological Survey in maintaining stream gages.
		Soil Resource Planning
		Conduct an on-site soil investigation where needed to identify soil properties of riparian sites not delineated in the T.E.S. inventory due to mapping scale and inclusions such as soils with aquic subgroups, aquic soil moisture regimes, and poorly drained properties.

Program Components	**Activities**	**Standards and Guidelines**
		Water Resource Improvement
		Through coordination with other disciplines, maintain or improve, where necessary, riparian vegetation along streams for moderating water temperature and protecting bank stability. Accomplish promptly after the inventory phase is completed. Investigate and implement where necessary, cost effective structural measures to control channel erosion.
		Minerals
Minerals		Mineral material excavation with the riparian zone may be allowed after environmental analysis. Authorized mineral activies will maintain or improve riparian conditions.
		Special-Use Management
Special Uses/Lands		New special-uses are normally not allowed in riparian areas unless they benefit riparian management. Exceptions which cannot be avoided, such as utility lines or roads crossing stream courses, are designed to minimize the amount of riparian affected and the degree of effects.
		Land Exchange
		Acquiring riparian areas through land exchange has a high priority.
		Fire Management Planning and Analysis
Protection		Fight fire aggressively, if necessary, to prevent resource damage, using suppression methods that minimize long-term adverse impacts to riparian habitats.

Cinder Hills Off-Highway Vehicle Area – MA 13

Acres: 13,711

The northern boundary is south of Sunset Crater Volcano National Monument (Monument) and south of Forest Road (FR) 545, the eastern boundary is the Doney MA, (east of Fernwood subdivision), the southern boundary is the Doney MA (underground pipeline) and the western boundary is the Craters MA (large KV electric line). This MA is a portion of the San Francisco volcanic field with a field of large cinder cones sparsely covered by ponderosa pine trees and shrubs and covered with a deep layer of loose cinders. The landscape of impressive cinder cones in this MA provides world class ATV, sandrail, and motorcycle riding, dispersed camping, and spectacular scenery. Unique among southwestern forests, the Cinder Hills are the result of massive, recent volcanic activity around the San Francisco Mountain. NASA used a part of the area to train astronauts in the 1960's because of its moon-like surface. The unique nature of the cinder soils, combined with hills, cool summer temperatures, and other features make the Cinder Hills OHV area an extremely popular destination of OHV enthusiasts. Individuals and large groups enjoy the area year-round, with heaviest use occurring on summer weekends. Because of the deep cinders, only 4 wheel drive, ATV's, or sandrails can travel on the cindery roads. Other roads are travelable only because they have had other surface material brought in. Current improvements include improved main roads, trails, loading ramps, and signs. There is no private land within the MA; the communities of Fernwood and Doney Park are adjacent to the nearby Doney MA.

Portions of the Cinder Hills OHV area are viewed from overlooks in the Monument and as one drives along FR 545. As visitors look from the Cinder Hills Overlook, OHV activity can be seen and heard, especially on very busy weekends. The hills provide a scenic backdrop as seen from Highway 89. New information has shown that portions of the OHV area erupted along with Sunset Crater. The geologic ties of Gyp Crater and the rest of the volcanic "vent" and the Kana-a Lava flow, has lead to greater emphasis on protection of these features. Some of the landforms in the Cinder Hills hold religious and cultural significance to American Indians. This MA supports plant and animal species adapted to cinder landscapes. Plants adapted to the cinder soils include *Penstemon clutei*, a Forest Service Region 3[5] sensitive plant.

Management Emphasis

Emphasize OHV recreation opportunities and amenities. Monitor communities of plants such as *Penstemon cluteii* where and when they occur in the OHV area. Ensure continued existence of this endemic plant. Mitigate scenic integrity of areas seen from the Monument, Highway 89, and neighboring rural residential areas. Protect the Kana-a Lava flow and Gyp Crater geologic features associated with Sunset Crater.

[5] *Region 3 refers to the Southwest Region of the Forest Service including Arizona, New Mexico, and a portion of Oklahoma*

Highlights include:

- Per the Objectives for Recreation Opportunity Spectrum map, this MA is mostly Semi-primitive Motorized with Roaded Natural corridors along improved roads. On busy summer weekends there are more people than would usually be the case in a Semi-primitive setting, but other aspects of Semi-primitive settings occur and this is acceptable.
- Actively manage for OHV use by increasing facilities to match use, better signing and trail designation, more on-site presence, and road improvement. Coordinate administration/enforcement with the National Park Service.
- Management Indicator Species for this MA are mule deer, pygmy nuthatch, and hairy woodpecker.
- Manage for Visual Quality Objectives (VQO's) of Partial Retention, and Modification. The VQO's should be Partial Retention as seen from Doney Park, Highway 89, Sunset Crater Volcano National Monument vistas, and FR 545; and Modification from roads crossing the area.

All of the following items are Guidelines

OHV Use

This MA is designated for off-road driving and is managed for two and four wheeled vehicles.

Manage off-road driving to provide recreational opportunities and coordinate with needs of other recreation users and other resources.

Make slight adjustments to the boundary of the OHV area where needed to ease administration of the site. These changes will improve enforcement of the boundaries, help users identify the area, and in combination with other access management activities will lessen encroachment into the Monument. Consider fencing or other physical barriers a means of boundary identification.

The boundary has been slightly revised on the southwest corner of the area for administrative identification. There is no significant change in the size of the area, but it is adjusted to roads

or features that are identifiable on the ground. The map in Appendix M has been revised to reflect what is currently posted on the ground.

See the *Objectives for Recreation Opportunity Spectrum* map (Appendix M) and manage uses to meet these objectives. On busy summer weekends, the number of encounters with other recreationists will likely be outside parameters set for Semi-primitive settings and this is acceptable.

Reference the *Cinder Hills Off-Road Driving Area Report* (Peaks Ranger District). This report is a detailed desired condition that will be validated or changed via subsequent site-specific NEPA analysis. This report includes a map of the desired improved roads, camping areas, specific slope designations, rehabilitation needs, sanitation facilities, signing, boundary management, information, and interpretation actions. The report will be updated as needed with involvement from off-road vehicle users, Native American tribes, and others concerned with Cinder Hills use. Requiring a permit and/or charging a fee may be considered in the future. Operation of the area by a concessionaire may be considered.

Portions of this MA will be open to unrestricted cross-country travel, portions will have use restricted to designated routes, and portions will be closed (some slopes).

Reasons for closing areas may include:

- Protection of geologic features tied to Sunset Crater
- Scenic integrity of steep slopes facing the Sunset Crater Overlook, the Doney Park communities, and Highway 89
- Presence of archaeological sites that could be damaged (usually located under a cinder layer) or other places of traditional cultural importance
- Maintenance of ground vegetation necessary for ecosystem function
- Sensitive plant locations, such as *Penstemon cluteii*
- Needs of off-road users
- User safety
- Manageability
- Excessive erosion resulting in cinder removal down to mineral soil and subsequent erosion or resulting bare tree roots exposed at mineral soil

Reasons for keeping areas open may include:

- Low visibility from communities or from the Monument (interior of this MA)
- Quality of the ATV/sandrail experience
- To provide for a variety of OHV experiences
- Proximity to camping areas
- Low or absent vegetative cover

Organized off-road driving events are considered on a case-by-case basis through the environmental analysis process.

Glass containers may be prohibited if the containers create a health, safety, and/or litter problem.

Pursue on-site patrols and more full time stewardship.

Partner with OHV community to benefit from volunteer contributions.

Pursue State[6] grants and other funding opportunities for improvements, rehabilitation, interpretation, and on-site presence. Other funding may include Fee Demo.[7]

Vehicle sound emissions will be required to meet State standards, or in the absence of State standards, industry or other standards.

Vehicles will meet Forest Service Region 3 fire equipment standards.

Recreation Signing

Improve and maintain boundary and interior signing. Cooperate with NPS to construct a physical barrier delineating the OHV area from the National Monument boundary if motorized incursions continue.

Camping and Roads

Improve or re-locate improved roads and locate camping in order to disperse riders, provide additional areas for enjoyment, and lessen use in sensitive areas. This includes limiting through traffic to the Sunset Crater Volcano-Wupatki Scenic Loop Drive (FR545), and improvement of roads in the interior of the area. Criteria for access and camping design include: location of riding areas, presence of *Penstemon cluteii* habitat, dispersing riders, improving visual quality, and protection and rehabilitation needs of impaired vegetation and soils.

Provide different camping levels and experiences. Provide more developed camping hubs along improved roads. Design and develop transportation routes at camping hubs for pulling off the road. These hubs will include sanitation facilities. Provide quiet area camping sites. Quiet area restrictions are posted, and as funding becomes available, monitored by host and OHV users. Sanitation facilities are included at these sites as needed. All other areas of the OHV are open to primitive camping, unless specifically closed.

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[6] *Coordination with the State: We will continue to work with the State, to determine what grants are available and appropriate to apply for in relation to the proposed management, improvements, and rehabilitation needs of the area. In addition to exploring funding avenues, we will work with the State to determine other management partnerships that might be desirable to achieve the management objectives and enhance the OHV experience.*

[7] *Fee Demo: The District will be studying the concept of Fee Demo for the OHV Area. A District team will determine if fee demo is a desirable funding avenue, and if so, how a fee demo area would be implemented. We will visit other fee demo sites, talk to other managers, and work with the OHV community to determine if this is an appropriate and/or desirable action to take.*

Scenery

In closed areas, attempt actions to remove tracks and re-create natural cinder landscapes. Research techniques that may help the situation, but without causing large areas of additional ground disturbance. Examples of actions may include raking, dragging cinders up slope, mimicking needlecast or seeding.

Cultural/Historical

Provide signing informing the public about closure of astronaut training ground.

Close the astronaut training ground by adding a fence to exclude OHV's.

Continue active monitoring of cultural and historical sites to assess impacts from recreation. Changes in management can occur in response to demonstrated (through monitoring) negative impacts to archaeological resources. Cooperate with Park Service personnel to accomplish monitoring.

Rare Plants

Continue to monitor *Penstemon cluteii*. There is an ongoing status report[8] being developed for this plant. As this information is attained we will make any necessary adjustments to ensure continued existence of this endemic plant.

Forestry

Many acres within the Cinder Hills OHV area have low regeneration potential due to cinder soils and are currently classified as unsuitable for timber production.

Evaluate stand conditions, including insect and disease, and the health and vigor of stands. Where and when necessary to meet safety objectives, harvest recent dead and poor risk ponderosa pine.

Livestock Grazing

This area is currently closed to livestock grazing.

Prescribed Burning

Prescribed fire using planned and unplanned ignitions is used to accomplish resource objectives except there is no provision for unplanned ignitions in areas included in the urban interface.

[8] *Penstemon cluteii grows in cinder soils at various locations on the Peaks Ranger District. The status report covers the entire range for this plant, which includes the OHV area.*

Coordination with National Park Service

Protect areas that are directly tied to the Sunset Crater eruption for future research, and visitor interpretation of the geologic story. Coordinate with the NPS to inventory, map, and assess conditions of the geologic features.

For Gyp Crater: establish safety barriers, and/or warning signs around the exterior of the crater, establish and coordinate interpretive signing and programs with the National Park Service, close Gyp Crater to OHV access and camping, and rehabilitate tracks in Gyp Crater.

For the Kana-a lava flow, prevent off road vehicle use in the lava flow. Use proposed boundary adjustments in combination with access management. Roads leading north off of FR 244 should be closed and rehabilitated. These roads lead out of the OHV area and impact the Kana-a lava flow.

Work with and establish interpretive messages and programs with the National Park Service and volunteers from OHV users. Including improved signing, information kiosks, and interpretive message at the Cinder Hills Overlook. Provide signing and information aimed at the following objectives: to prevent lost riders, to show opportunities of where to ride, to clearly depict boundaries and eliminate encroachment into Sunset Crater Volcano National Monument, and to identify dangerous and/or closed areas.

Coordinate with Sunset Crater Volcano and Wupatki National Monuments in managing dispersed recreation use adjacent to the Monuments.

Oak Creek Canyon (MA 14)

Acres: 5,388

This MA begins just north of Uptown Sedona and rises to Oak Creek Vista amid steep walls, a rich streamside environment and deep, clear pools. Oak Creek Canyon, which contains private lands interspersed with National Forest lands, is internationally known for its unique beauty and recreation opportunities. Nearly five million people pass through the Canyon annually. Residents and visitors alike are concerned about how to meet their recreation desires while protecting wildlife, water quality and the beauty they came to experience.

MANAGEMENT EMPHASIS

Emphasize day-use activities that are pedestrian-oriented with access to Oak Creek and scenery. Provide a range of high-quality recreation benefits and interpretation.

Highway 89A offers an outstanding scenic driving experience.

Wildlife habitat, healthy stream conditions and clean air and water are protected.

Cultural history is interpreted.

Fire hazards and risk are carefully managed within this streamside corridor.

PLANTS, WILDLIFE, SOIL, AIR AND WATER

Objectives

1. Consider recreation management methods that are consistent with wildlife habitat direction.
2. Complete the assessment of road densities, conditions and locations within the Oak Creek watershed in order to identify actions needed to reduce impacts on the floodplain, peak flows and sediment routing.
3. Participate with the Oak Creek Water Quality Task Force and assist with implementation of its recommendations. Collaborate with County and State governments to protect public health and safety by defining water quality monitoring and public health and safety risk management.
4. Explore the need for and feasibility of reducing campfire smoke in Oak Creek Canyon from April to November to improve habitat conditions for bats, birds and other wildlife species.
5. Use prescribed fire and mechanical methods to achieve fire management goals.
6. Ensure adequate instream flow to maintain aquatic communities and water sources for wildlife.

7. Initiate collaboration with the AG&FD and the USFWS to determine the feasibility of reintroducing Gila trout into Oak Creek.
8. Support research efforts that further define the habitat requirements of native fish and bat populations. Protect and/or restore habitat conditions that may be limiting these populations.
9. Ensure that there is an appropriate range of spawning, rearing and overwintering habitat to support the native fish community in Oak Creek.
10. Ensure that woody materials, such as logs, tree limbs and snags, are present in riparian communities for prey base habitat, aquatic nutrient cycling and soil retention consistent with public safety.
11. Acquire undeveloped private property needed to protect critical riparian habitats.

Standards

1. Water quality in Oak Creek must comply with Arizona State water quality standards and the State Unique Water status of Oak Creek.

Guidelines

1. Discourage facility investments within the Oak Creek 100-year floodplain.
2. Cooperate with the AG&FD to stock fish and provide fishing access to meet goals and objectives of the Arizona Cold Water Fisheries Strategic Plan.
3. Assess existing and proposed floodplain developments for their impacts on floodplain function and channel processes.

SCENERY

Objectives

1. State Highway 89A provides a high-quality scenic experience. Highway improvements should blend with existing natural-appearing features except when there are safety concerns that cannot be mitigated. Minimize the relative dominance (scale) of State Highway 89A to the extent possible/practical.
2. National Forest land within Oak Creek Canyon should retain their natural characteristics. Identify private parcels on which development does, or could, detract from scenic integrity. Pursue methods for protecting scenic integrity such as scenic easements or acquisition.

3. Infrastructure on National Forest lands associated with private land needs, such as utilities, waterlines, roads and bridges, meets scenic goals, particularly as viewed from the highway and recreation sites.

PREHISTORIC AND HISTORIC ARCHAEOLOGY

Objectives

1. Cultural areas with distinctive historic features such as orchards are inventoried and evaluated for their landscape value and interpretive potential. Such areas include Pendley Homestead, Mayhew Lodge, Call of the Canyon, Manzanita, Banjo Bill, Cave Springs and Troutdale.

COMMUNITY

Objectives

1. Fire management activities are intense and focus on protection of life and property. Identify locations of high fuel buildup and potential National Forest/urban interface wildfire problems.
2. Public/private land patterns and uses protect the riparian community and the surrounding scenic quality of Oak Creek Canyon. Identify private land important for acquisition.
3. Strengthen partnerships with ADOT, Coconino County and private landowners to protect scenic quality, water quality and riparian resources and to provide a safe recreational driving experience on the highway.

Guidelines

1. Slide Rock base-for-exchange land is intended for acquisition by Slide Rock State Park to better facilitate management of the creek and the park.

RECREATION

Objectives

1. Oak Creek Canyon is an area of contrasting recreation settings, ranging from heavily used highway to highly developed recreation sites and resorts to primitive trails. Manage most of the Canyon for Rural or Roaded Natural ROS settings. Management should be consistent with a Rural and Roaded Natural ROS setting adjacent to the road. In areas more remote from the road influence, the setting should transition to a Semi-primitive ROS setting. Access to the West Fork of Oak Creek should have a Semi-primitive character.
2. The recreation experience should not be significantly affected by crowding at recreation sites or on State Highway 89A.

3. Increase day-use opportunities emphasizing nature-based activities such as hiking, picnicking, bird watching, photography, fishing and interpretation. Increase opportunities for people to access the water and enjoy the creek.
4. Litter control is a priority through enforcement, refuse and recycling facilities and litter patrols.
5. Collaborate with State Parks to better meet visitor needs and protect resources in the vicinity of Slide Rock. Evaluate Halfway Picnic Ground for future needs for parking, coordinating this effort with Slide Rock State Park.
6. Limit the amount of development and consolidate parking and facility development where possible to minimize resource impacts in the Canyon. Use such methods as alternative modes of transportation, roadside parking limits and parking fees. Develop a strategy to minimize private vehicle traffic and reduce parking impacts, thus improving scenic quality and safety. Encourage alternativemodes of transportation that reduce automobile dependency and traffic congestion. Investigate the feasibility of shuttle services for Oak Creek Canyon. The level of private recreation traffic in the Canyon should be consistent with a high-quality recreation experience.
7. Provide scenic turnouts along State Highway 89A where appropriate. Locations for consideration are Banjo Bill, Bootlegger, Midgely Bridge and the Sedona City limits.
8. Develop a trails strategy for Oak Creek Canyon that:
   - allows for creek access while protecting the riparian community, wildlife habitat and sensitive plants;
   - improves trail access and orientation information;
   - provides loop trail opportunities with existing trails that lead to the rim of Oak Creek Canyon and other management areas;
   - expands opportunities for interpretive trails and pleasure walking at sites such as Cave Springs Campground, Call of the Canyon, the West Fork of Oak Creek and/ campgrounds and picnic areas;
   - maintains historical trails that access the rim of Oak Creek Canyon, such as the Telephone, Purtyman, Harding Springs, Cookstove, Thomas Point, Thompson Ladder and Casner trails;
   - supports transportation goals; and
   - considers a safe pedestrian route extending the length of Oak Creek Canyon from uptown Sedona to Oak Creek Vista.

9. Assess the need for upgrading campground facilities to meet demands for group use, showers and child-play areas.
10. Convert Banjo Bill and Bootlegger Campgrounds to day-use areas.
11. Develop a rock-climbing management strategy for the Oak Creek Vista area that addresses climbing needs, visitor safety and resource protection.
12. Redesign the Wilson Mountain Trailhead area to avoid the crowding and traffic problems that currently exist at Midgely Bridge and to improve the appearance and accessibility of view access trails at Midgely Bridge.
13. Evaluate the feasibility of picnic and interpretive trail development at Call of the Canyon.
14. Use a scenic corridor action plan to develop more specific direction for Oak Creek Canyon to guide scenic, transportation and recreation elements. Manage Oak Creek Vista primarily for short-duration visits emphasizing interpretation and orientation to Oak Creek Canyon and the redrock country.
15. Open Wilson Mountain trail to equestrian use. Provide horse trailer parking at the Jim Thompson Trailhead to access Wilson Mountain Trail.
16. Reduce heavy smoke build-up in Oak Creek Canyon through such methods as requiring campers to burn only dry wood, prohibiting wood gathering and prohibiting campfires at certain times.
17. Reduce impacts on water quality by such methods as:
    - placing toilets in strategic locations,
    - providing information about proper sanitation practices,
    - limiting equestrian use, and
    - installing shower and hand-washing facilities and more gray-water disposal sites.
18. Restore damaged sites along Oak Creek, including but not limited to the Ladders, the pools upstream from Slide Rock, Midgely pools, Pumphouse and Hawkeye.

Standards

1. Prohibit National Forest access to Slide Rock recreation area except through the State Park and prohibit parking along State Highway 89A in this vicinity.

2. Prohibit camping and recreation fires except in designated sites.

Guidelines

1. Accommodate research and educational activities consistent with resource protection and recreation experience goals.

COMMERCIAL USES

Objectives

1. Encourage alternative modes of transportation provided by commercial tours to help reduce the impacts of traffic and parking.

Standards

1. Withdraw Oak Creek Canyon MA from locatable and leasable mineral entry.
2. Minerals materials operations are discouraged, though some activities may be appropriate for ADOT and Forest Service administration needs if they are minor and consistent with MA objectives and goals.

INTERPRETATION AND COMMUNICATION

Objectives

1. Agencies communicate and work together with local organizations to achieve goals for the Canyon. There is ongoing communication among community organizations, interest groups and homeowner associations.
2. Regulations (e.g., parking rules and prohibitions against littering) are known and enforced. Visitors are properly informed about services, facilities, rules and environmental ethics.

3. Develop an interpretive trail outside of Wilderness at Call of the Canyon to reduce pressure on the Oak Creek RNA and to meet the demand for access and interpretation along Oak Creek.
4. Through a variety of interpretive efforts, people learn about geology, riparian communities and biodiversity and will be motivated to practice careful stewardship.
5. Provide an easily accessible directory to recreation opportunities and interpretive activities and a wide variety of publications and interactive materials at Oak Creek Vista.
6. Visitors should feel welcomed to Oak Creek Canyon and know where to go to enjoy the activities they seek. They should sense that they are entering a special location with unique and remarkable characteristics.

Guidelines

1. Interpretation should follow the themes established in the Sedona Ranger District Interpretive Strategy and more specific direction developed through further site-specific analysis and planning for Oak Creek Canyon.

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Developed Recreation Sites - Management Area 15

Analysis Areas 22, 23, 24, 58
Acres: 874

Developed recreation sites not included in the Oak Creek or Mogollon Rim Management Areas are included in this Management Area. Developed recreation facilities under special-use authorization include the Snow Bowl ski area, summer home areas near Mormon Lake and in 44 Canyon, organization camps, and resorts.

People have been and will continue to be attracted to these areas because:

- There is a scarcity of water in the Southwest and people are attracted to water environments. Most of the developed sites are near water.
- The areas provide climatic relief and a high degree of scenic quality.
- Campgrounds attract people and roads provide access.

These areas are not conducive to either intensive timber or forage production. Vegetative types include the broadest cross section of Forest vegetation. Climate is highly variable.

Management Emphasis

Emphasize developed recreation.

Highlights include:

- Manage for VQO's of Retention or Partial Retention with the exception of the Snow Bowl.
- Construct, reconstruct, or expand sites according to approved site plans and as funding permits.
- Facility development at the Snow Bowl ski area is guided by the Ski Area Master Development Plan based on approved NEPA analysis.

Program Components	**Activities**	**Standards and Guidelines**
		Recreation Planning and Inventory
Recreation		Evaluate all five summer home areas near Mormon Lake and the area at 44 Canyon in the first decade to determine future disposition. The evaluation will determine if there is a need to terminate, continue, relocate, or exchange the areas into private ownership. Do not issue new 20 year term permits or extend existing permits beyond 10 years until this evaluation is completed.
		Recreation or VIS Site Rehabilitation
		Conduct feasibility studies and develop project plans for site rehabilitation on a scheduled basis. Plans include upgrading of RIM Condition Classes 4-8 to Class 1. Site rehabilitation includes site grading, stream protection, vegetation establishment, and road improvement and realignment, where appropriate.
		In designing new facilities and in evaluating developed sites that are amortized or in need of reconstruction, give special consideration to riparian habitat, especially riparian scrub, wetlands, and riparian forest. Utilize opportunities to relocate existing facilities out of these areas where it can be done cost-effectively and still provide adequate opportunities for National Forest recreation.
		Developed Recreation Sites--Standard Service Level Management
		Operate developed sites at a Standard Service level. Patrol areas regularly for such things as public safety, facility/resource protection, and fee compliance checks. Sites are operated during their heavy use season and to the standards outlined in Forest Service publication "Cleaning Recreation Sites (7/80)."
		Maintain facilities at Condition Class Level I. Repair minor site damage within 1 year and major site damage within 2 years. Sites are closed to off-road driving, unless specific management needs are identified for such things as administration, construction, or maintenance. Sites are closed to vehicles and operators not licensed for highway use in the State of Arizona.
		Visual Management
		Manage the Snow Bowl special-use authorization area as Modification and Maximum Modification because of the improvements and cleared runs. However, minimize adverse visual impacts in all activities.

Program Components	**Activities**	**Standards and Guidelines**
		Range Resource Planning and Inventory
Range		No grazing capacity has been assigned.
		The Snow Bowl special-use authorization area will be fenced to physically exclude grazing.
		Timber Resource Management Planning and Inventory
Timber		Conduct inventory, plans, and examination as requested by other resources.
		No timber activities are planned unless requested for user safety or development purposes, and insect and disease control.
		Plan, prepare, administer, and sell or issue permits for commercial and personal-use, miscellaneous convertible and nonconvertible products as requested by other resources (FSM 2462).
		Bear Habitat:
		Evaluate bear habitat needs during project planning.
		Water Resources Monitoring
Watershed/Soils/Air		Monitor water quality and quantity in compliance with P.L. 92-500, Section 208.
		Conduct water quality monitoring of primary contact recreation sites to standards of FSM 2540 and Arizona Water Quality Standards for full body contact waters (swimming and wading). Limit access to sites when standards are repeatedly exceeded. Notify the public when water quality has not met State and Federal Standards at designated swimming sites with signs where it is reasonable to expect reoccurrence.
		Fire Management Planning and Analysis
Protection		Suppression objective is to minimize damage to improvements and/or resources.
		Prescribed fire using planned ignitions is used as a management tool where it is needed to accomplish resource objectives.

Inner Basin - Management Area 16

Analysis Area: 21
Acres: 972

The Inner Basin is a collapsed caldera which was subsequently glaciated. Located on the eastern slopes of the San Francisco Peaks, it provides a variety of recreational, scenic, and water resources.

The Inner Basin contributes to the water supply for Flagstaff through an extensive water collection and distribution system. Originally developed by the railroad around the turn of the century, the water system includes spring developments, infiltration galleries, and wells, along with associated access roads and buried pipelines. It is the heart of the Flagstaff Municipal Watershed, an area designated by the Chief of the Forest Service.

The area is open to day-use foot traffic, but closed to domestic livestock and public travel by vehicle. Protecting water quality is the main thrust of management direction.

The Inner Basin is a popular dispersed recreation area. It is also highly visible from the Weatherford Trail in the Kachina Peaks Wilderness.

Management Emphasis

Emphasize and protect watershed condition because of the area's importance for water collection for the City of Flagstaff and visual quality.

Highlights include:

- The existing roads may be used as a corridor for a buried powerline to provide electric power for the wells, in lieu of the current diesel operated pumps.
- The VQO is Partial Retention as viewed from the Kachina Peaks Wilderness.

Program Components	**Activities**	**Standards and Guidelines**
		Recreation Planning and Inventory
Recreation		Dispersed use is limited to day use, foot or bicycle traffic only. Signing needed to control use is provided, installed, and maintained by the City of Flagstaff.
		Range Resource Planning and Inventory
Range		The area is closed to grazing and is not part of a grazing allotment. Unfenced areas are fenced as needed.
		Timber Resource Management Planning and Inventory
Timber		Conduct stand examination and evaluation as requested by other resources. No timber activities are planned, except as needed by other resources, or to control significant insect or disease outbreaks.
		Plan, prepare, administer, and sell or issue permits for commercial and personal use, miscellaneous convertible and nonconvertible products as requested by other resources (FSM 2462).
		Special-Use Management
Special Uses/Lands		Continue to work with City of Flagstaff to minimize environmental impacts in the Inner Basin and to improve rehabilitation of areas disturbed through past development and maintenance such as Abineau Road. Encourage the City of Flagstaff to convert existing diesel pumps to electric pumps by establishing an underground electrical line into the Inner Basin using existing roads within the Basin. Evaluate the City of Flagstaff proposed water development projects using the NEPA process and monitor the projects. Identify rehabilitation needs caused by City activities and accomplish in conjunction with each project as needs occur.
		Transportation Management and Planning
Transportation		Limit vehicle access to City and Federal vehicles necessary to administer the area. The area is closed to livestock use and recreational livestock use such as horses, mules, or llamas. The area is closed to off-road driving use.
		Existing roads are jointly reviewed by the City and the Forest in the first decade and those determined unnecessary to administer the area are obliterated. The Forest is responsible for obliterating roads it creates and no longer needs and the City is responsible for obliterating theirs.
		Fire Management Planning and Analysis
Protection		The suppression objective is to hold fires to 10 acres or less. Choose suppression tactics that minimize damage to the soil and water resources. Prescribed fire using planned ignitions is used to accomplish fuel treatment and other resource objectives.

Special Areas - Management Area 17

Analysis Areas: 48-51
Acres: 4,459

The Special Areas include one geological area, four botanical areas, one research natural area (RNA), Casner Canyon, and one proposed RNA, Rocky Gulch. There are two other RNA's, the San Francisco Peaks and West Fork of Oak Creek, included in the wildernesses that surround them, and G. A. Pearson RNA is included in the Fort Valley Experimental Forest. The management direction for Oak Creek RNA has been expanded with Amendment 12 in addition to the following the management direction for the Special Areas originally identified in the Forest Plan. However, the acres for Oak Creek and San Francisco Peaks RNAs and the G.A. Pearson RNA are all accounted for in the other MAs that they have dual designations with, such as wilderness or experimental forest, so that the only source of change for acreage is Casner Canyon RNA. West Clear Creek proposed RNA is within the West Clear Creek Wilderness. By approval of this Forest Plan, the Red Mountain Geological Area, the Mogollon Rim Botanical Area, the Verde Valley Botanical Area, the Fern Mountain Botanical Area, and the Fossil Springs Botanical Area are officially designated (FSM 2372.2). The proposed Rocky Gulch and West Clear Creek RNA's require establishment reports and designation by the Chief.

- Casner Canyon RNA is located near Sedona and within Oak Creek Canyon. The area contains a pure stand of Arizona cypress along with some chaparral. This area was established in 1973 and contains 609 acres.
- The 1,201-acre Red Mountain Geological Area was first proposed in 1977 by the Forest but only had a withdrawal from mineral entry without formal designation. It contains a unique cinder cone within the San Francisco Peaks volcanic field.
- Mogollon Rim Botanical Area, a 339-acre white fir/bigtooth maple community, represents a unique vegetation type found in Arizona only at a few locations along the Mogollon Rim.
- Verde Valley Botanical Area, a 1,209-acre desert scrub community, represents a unique desert community which has been greatly reduced by human activities. Cowania subintegra, a T&E species, is located here.
- Fern Mountain Botanical Area, a 186-acre high elevation riparian scrub community dominated by Bebb's willow, represents a unique riparian community .
- Fossil Springs Botanical Area is a riparian deciduous forest associated with a large perennial spring and covers approximately 12 acres. It is immediately adjacent to the Fossil Springs Wilderness.
- Rocky Gulch proposed RNA is located in the Beaver Creek Watershed. The area contains 950 acres of old-growth ponderosa pine and was one of the control watersheds for research in the Beaver Creek Watershed (acres are in MA 3).

Special designations not in Forest Plan decision authority:

- The 150-acre G. A. Pearson RNA was established in 1950 and is located just north of Flagstaff in a portion of Rocky Mountain Research Station Experimental Forest. The area represents a pure stand of old-growth ponderosa pine. Management decisions for the experimental forests are not made in this Forest Plan.

Management Emphasis

Emphasize and protect watershed condition and maintain natural ecological

conditions on the Research Natural Areas (RNA's) so that they are available for research and education that does not disturb the areas' natural condition. Use restrictions are imposed as necessary to keep areas in their natural or unmodified condition. There is no harvest of timber products, including firewood. RNA's are closed to off-road driving.

The botanical areas and the geological area are managed to maintain, as nearly as possible, existing conditions and natural processes for public enjoyment, demonstration, and study. Interpretative and educational demonstration opportunities are emphasized and enhanced through selective facility development. Natural events are not rehabilitated. Off-road driving is prohibited.

Highlights include:

- Prepare establishment reports for the Rocky Gulch and West Clear Creek proposed Research Natural Areas.
- Prepare implementation schedules for the botanical areas and the geological area.
- Include management that provides for later interpretation.
- Manage for VQO's of Preservation in the research natural areas and Retention or Partial Retention in the geological and botanical areas.

Program Components	**Activities**	**Standards and Guidelines**
		Recreation Planning and Inventory
Recreation		Prepare an implementation schedule for the Red Mountain Geological Area and post the boundaries for it in the first decade.
		Prepare implementation schedules and post boundaries for Mogollon Rim, Verde Valley, Fern Mountain, and Fossil Springs botanical areas during the first decade.
		Eliminate mention of RNA's in news stories and general informational materials.
		Prepare establishment reports for the Rocky Gulch and West Clear Creek proposed RNA's during the first decade. In the interim, manage them to preserve their suitability for designation.
		As the Arizona Natural Areas Council recommends RNA's and botanical areas for inclusion in the State Natural Areas Program, the Forest will review the recommendations and may support the recommendations and develop VIS programs as needed.
		Dispersed Recreation--Standard Service Level
		As needed, assess carrying capacity in special areas and limit visitors to meet carrying capacity.
		Prohibit off road-driving.
		Range Resources Planning and Inventory
Range		RNA's are assigned no grazing capacity.
		There are 93 acres in the Red Mountain Geological Area open to grazing that are managed at the C level.
		RNA's and botanical areas are managed to protect and maintain their uniqueness and ecological condition.
		AMP's will have provisions to protect the uniqueness and/or ecological condition of the special areas. Approved AMP's are revised and if necessary amended by 1992.
		Timber Resource Management Planning and Inventory
Timber		Timber harvest and firewood cutting is prohibited.

Program Components	**Activities**	**Standards and Guidelines**
		Minerals
Minerals		Seek withdrawal of RNA's and the other special areas from locatable mineral entry in the first decade.
		Lands
Special Uses/Lands		Do not allow special-use authorizations that would or could adversely affect or change the character of the areas.
		Road Maintenance and Management
Transportation		Manage roads adjacent to botanical areas and the Red Mountain Geological Area to prevent vehicular intrusion. Block and obliterate existing roads entering the area in the first decade.
		Fire Management Planning and Inventory
Protection		Use prescribed fire with planned ignitions as a management tool provided its use is compatible with the management of the specific area.
		Suppression tactics minimize damage to the the character of RNA's and all other special areas.
		Manage each special area as the adjacent lands until implementation schedules are developed.
		Implementation schedules will recognize each area's unique management objectives and the sensitivity of each area to different fire suppression techniques.

Special Areas (MA 17)

The Sedona/Oak Creek Planning Area created more specific direction for two research natural areas: Oak Creek RNA in the West Fork of Oak Creek and Casner RNA to the north of Schnebly Hill Road. Both are superb representatives of the area's natural plant communities. Oak Creek RNA is an example of a biologically diverse creek-side area and is a paleo-botanical area containing plant species surviving from the last ice age. Casner is noted for the Arizona cypress, which remains in an almost pristine condition on the area's lower slopes.

Management Emphasis

Ecosystem processes such as fire and flood play a natural role.

Access and management are consistent with preservation for research values.

Plants, Wildlife, Soil, Air and Water

Standards

1. Non-commercial group size should be limited to 25 persons or fewer in Casner RNA and to 12 persons or fewer without a permit in the West Fork of Oak Creek.
2. Prohibit livestock grazing.

Recreation

Objectives

1. Manage Casner RNA for a Semi-primitive Non-Motorized ROS setting. Manage Oak Creek RNA consistent with Wilderness-defined Primitive WOS setting criteria. Recognize the high level of hiking use in the lower part of West Fork through Oak Creek RNA as more consistent with Roaded Natural ROS setting criteria.
2. Limit visitor access and use to environmentally acceptable levels to maintain the research values of the RNA. Employ various methods such as using a permit system and providing alternative recreation opportunities and more intense management.

Standards

1. Prohibit overnight camping and recreation fires in Casner RNA.
2. Restrict camping and prohibit recreation fires in Oak Creek RNA.

Guidelines

1. Recreation use is not promoted and access is restricted as needed to keep these places in their natural, unmodified condition.

Commercial Uses

Standards

1. Prohibit permitted commercial tours except in support of approved research.

2. Withdraw Casner Canyon RNA from locatable and leasable mineral entry.

Environmental Study Areas – MA 18

Acres: 1,577

Mt. Elden ESA - Located at the base of Mt. Elden adjacent to the subdivisions of Shadow Mountain, Paradise Hills, Skyline Estates, and Swiss Manor, and adjacent to Buffalo Park. Originally a bird sanctuary, the Elden Environmental Study Area (ESA) serves a unique purpose. Trails provide for popular hikes that are convenient and easy to use. The area is available for study and recreation and has become an integral part of the Flagstaff Public School curriculum. In addition, the Elden ESA is popular daytime destination for hiking, dog-walking, mountain-biking, and horse riding. There are many formal access points developed along the edge of subdivisions providing public access. There are many informal access points and social trails as well. This ESA strengthens the opportunities for partnerships between the school, the Forest Service, and Arizona Game and Fish Department. A wintering deer herd provides an opportunity for wildlife viewing and monitoring by the students. The El Paso natural gas pipeline crosses the area.

Old Caves Crater ESA - Old Caves Crater is located north of Silver Saddle Road, east of Highway 89, and adjacent to Doney Park communities. This large volcanic cinder cone has diverse vegetation, provides scenic backdrops to surrounding residents, and contains archaeological sites and cultural values. Teachers at Cromer School have developed a curriculum for the area and students walk from the school to the site. There are trails in the area and high levels of non-motorized daytime dispersed recreation use.

Griffith's Spring ESA - Griffith's Spring is located south of Flagstaff on Highway 89A, adjacent to the Forest Highlands community and just south of Pine Dell. Among a variety of uses, local teachers have used the spring and its stream channel as an outdoor classroom. Visitors traveling Highway 89A stop here for picnics and daytime walks. Nearby residents also enjoy the area. There is a stream channel with riparian vegetation and aquatic species. A nearby wet meadow adds additional diversity.

Management Emphasis

Elden ESA now includes an area behind Christensen Elementary School. The area directly behind Christensen and the Peaks Ranger Station is adjacent to the current Elden ESA.

Emphasize environmental education opportunities for the Flagstaff Public Schools and the general public by maintaining the ecosystem and developing interpretive facilities. Since these areas fall within the Urban/Rural Influence Zone, emphasize fuels reduction and other techniques to reduce the risk of catastrophic wildfire. Non-motorized dispersed recreation is encouraged. Visual resource management and watershed condition are emphasized. Cultural resources are protected and where appropriate interpretation of cultural resources is provided. Low fire potential exists with fire's role re-established in the ecosystem. Meadows and drainages function properly and aquatic species are maintained.

Highlights include:

- In the Elden ESA implement tree thinning, prescribed fire or other activities that lessen risk of catastrophic wildfire and maintain shrubs, such as Arizona cliffrose, that provide winter food source for deer.
- Implement improvements in the Old Caves Crater that improve watershed health, protect fragile archaeological sites, restore vegetation to bare soil areas, close the area to motorized vehicles, and provide trails for non-motorized daytime recreation uses. Examples of improvements are; marking the boundary of the area with fenceline along private landlines, locate and adopt some trails and obliterate others, provide signing, change roads to trails or obliterate them, and locate a trail to the top of the Crater.
- Continue improvements to the Griffith's Spring area to provide for recreation and outdoor education and protects stream banks, riparian vegetation, aquatic wildlife species, and scenery. Examples of improvements are: parking areas, pole fences, interpretive and environmental education information, directional signing, and a vault toilet. The relocation and construction of trail and the closure and rehabilitation of two-track road are needed to prevent loss of vegetation, erosion and damage to streambanks, soil compaction, and excessive water turbidity. The construction of aspen/willow fences around a small area is needed to prevent browsing damage by elk and deer.

All of the following items are Guidelines.

Recreation

Develop the Elden ESA in accordance with the concept plan map prepared by the Recreation Resource Center for Environmental Education and Flagstaff Public Schools.

Plan and support uses and trails in conjunction with the curriculum needs of the Flagstaff Public Schools. Develop environmental education programs cooperatively with public schools.

Dispersed Recreation

Maintain fencing as needed for management.

The Elden ESA is open to the public for foot traffic and day use only. Use the El Paso Natural gas line as a trail in conjunction with the Mt. Elden/Dry Lake Hills trail system. Horses are allowed on the pipeline trail.

Enforce off-road driving closures. Make a special effort through the schools and the media to focus public attention on the importance of complying with the closure for all areas.

Special-Uses

New special-use authorizations or amendments to existing special-use authorizations that would or could adversely affect or change the character of the ESA are not allowed.

Forestry

Manage vegetation to meet management direction for this MA.

Livestock Grazing

The areas are not currently open to livestock grazing.

Prescribed Burning

Prescribed fires from planned ignitions are used to accomplish fuel treatment and other resource management objectives.

Mogollon Rim - Management Area 19

Analysis Areas: 1-9, 11, 12, 13
Acres: 12,044

The Mogollon Rim MA covers the area from the Rim north to the Rim road (Forest Road 300), the General Crook Trail, and the foreground VQO area adjacent to the boundary roads and trails. The MA extends from Arizona Highway 87 to the boundary with the Sitgreaves National Forest and includes Milk Ranch Point on the west and Knoll Lake on the east.

The Mogollon Rim forms the Forest's southern boundary. Dispersed recreation use is heavy and developed use is heavy at Knoll Lake and Kehl Springs Campgrounds.

Vegetation includes ponderosa pine, mixed conifer, and patches of aspen and bigtooth maple. There is a severe infestation of dwarf mistletoe in much of the ponderosa pine and mixed conifer.

While fire history has not been severe on the Coconino side, a number of large wildfires have started below the Mogollon Rim and made their way over the top and into the prime timber on the Sitgreaves National Forest to the east. For that reason, fire and fuels management are a constant concern.

The Mogollon Rim, both physically and historically, is the major division between the desert country in the south and the high timber of the Colorado Plateau. Its abrupt features make it an important scenic, historic, and recreational attraction.

Management Emphasis

Emphasize dispersed and developed recreation, visual quality, and wildlife travel corridors across the Rim, generally the heads of major canyons running to the northeast. Dwarf mistletoe is aggressively treated through ISM.

Highlights include:

- Manage for VQO of Retention in the foreground viewing area from the proposed General George Crook Trail, the Rim Road (300), Roads 218, 218A, 295, 295E, and 673A.
- The Rim Road is upgraded to double lane, aggregate surface with minimal realignment. It is scheduled to be completed in the second decade. Management of the resource and public safety, not speed, governs road standards.

- Develop hiking/horseback trails along the Rim road in coordination with the comprehensive plan for the proposed General George Crook National Historic Trail. Coordinate with the Apache-Sitgreaves National Forests.
- Restrict off-road driving use along and south of the Rim Road and the Crook Trail to enhance solitude and reduce distractions to other recreational users.
- Protect and maintain the General George Crook Trail. Reconstruction of the Rim road protects the major undisturbed portions of the trail.
- Natural and created fuels are treated to manage large fire potential and to protect visual resource and wildlife habitat.
- Wildlife corridors are provided for animals to move across the Rim.
- Develop informational trail guides jointly with the Tonto National Forest.
- Construct trails/trailheads for access from Crook Trail to Highline Trail on the Tonto.
- Construct a new developed campground.
- Expand existing developed campgrounds.
- Manage riparian inclusions according to MA 12 Standards and Guidelines.

Recreation Planning and Inventory

Recreation

Manage for VQO of foreground Retention on Roads 300, 218, 218A, 295E, and 673A.

Manage for VQO of Partial Retention on other roads within MA 19. Close MA 19 to off-road driving, except for vehicles traveling over-the-snow such as snowmobiles or in the vicinity of Knoll Lake, please refer to Off-road Driving Map.

Protect original mile posts, blazes, V monuments on trees and rocks, and other historical features on the General George Crook Trail.

Plan activities that cross the General George Crook Trail at approved locations only.

Develop Rim recreation trails to complement the potential General George Crook National Historical Trail. The trail is located generally south of the Road 300 along the Rim.

Plan and construct the Milk Ranch Point Loop Trail during the first decade.

Develop key trails and trailheads to accommodate hiking the Rim and the Highline Trail below the Rim. Coordinate with the Tonto National Forest.

Close trails that connect to the Highline Trail on the Tonto National Forest to motor vehicles.

Expand Knoll Lake Campground and construct Mogollon Rim Campground in the first decade. By the end of FY 1991 complete the environmental analysis and design narrative for the Mogollon Rim Campground.

Sites are closed to off-road driving, unless specific management needs are identified for such things as administration, construction, or maintenance. Sites are closed to vehicles and operators not licensed for highway use in the State of Arizona.

Nonstructural Wildlife Habitat Improvement

Wildlife and Fish

Improve forage conditions by seeding forage and browse species desirable to wildlife.

Use prescribed fire to improve wildlife forage.

Nonstructural Fish Habitat Improvements

See MA 12 for specific Standards and Guidelines.

Program Components	**Activities**	**Standards and Guidelines**
		Habitat Access Controlled by Closures
		Manage local and temporary roads feeding to the Rim Road as needed to enhance wildlife habitat and dispersed recreation.
		Range Resource Planning and Inventory
Range		Grazing allotments will generally be managed at C and D levels. There are 12,233 acres of full capacity lands; of the total, 758 acres are in less than satisfactory range condition. Less than satisfactory range condition will be improved through completions of the development program in AMP's.
		Range Forage Improvement Maintenance
		Evaluate forage improvements and maintain forage improvement acres in satisfactory or better condition. Except during the timber regeneration period, revegetate suitable sites. Forage emphasis is to attain a balanced composition of cool and warm season forage species.
		Where additional forage is needed, seed behind intermediate timber harvests with mixes tailored to fit the site. Emphasize high production, shade tolerant, multi-growing season species that will not inhibit tree regeneration. Do not seed after the last intermediate harvest if tree regeneration will be inhibited. Do not seed after seed cuts.
		Where open meadows in the pine/mixed conifer type are to be maintained, eliminate invading overstory vegetation, stabilize gullies to raise the water table, scarify the soil, and seed with appropriate grass and forage species. Control livestock grazing through management and/or fencing to establish the revegetation.
		Timber Planning and Inventory
Timber		Evaluate timber lands adjacent to the Rim within the first decade to determine timber suitability.
		Management for the ponderosa pine/mixed conifer stands and the big tooth maple stands is the same as MA 3, foreground Retention and for areas adjacent to foreground Retention lands. See MA 5 for direction for the aspen stands.
		Spotted Owl and Bear Habitat:
		Whenever possible, areas managed for old-growth, bear, and spotted owls are the same. Evaluate owl and bear habitat needs during project planning.

MEXICAN SPOTTED OWL AND NORTHERN GOSHAWK

Please refer to the Standards and Guidelines in the Forest-wide management direction on pages 65 through 65-11.

Program Components	**Activities**	**Standards and Guidelines**
		Mixed Conifer Stringers in Ponderosa Pine Silvilcultural Prescription:
		Mixed conifer stringers, primarily Douglas-fir, are noncontiguous, narrow communities that extend into the ponderosa pine. Manage the mixed conifer stringers to emphasize wildlife habitat needs by maintaining big game cover except where environmental analysis indicates otherwise.
		In key bear habitat, manage for at least 30 percent of the mixed conifer to meet bear hiding cover needs. Give priority for cover management in drainage bottoms, heads of drainages, and isolated pockets of mixed conifer. Defer logging activities from April 15 to June 30 in known bear maternity areas.
		Old-Growth:
		See **pages 70-1 through 70-2** for Standards and Guidelines.
Transportation		Work with Coconino County and Arizona Department of Transportation to provide safe parking for snowplay, cross-country skiing, and over-the-snow vehicles, such as snowmobiles, along and near Highway 87.
		Reconstruct the Rim road system consisting of portions of the 218, 218A, and 300 roads to a two-lane, aggregate surfaced road in the second decade. Use the existing corridor as closely as possible. Protect intact sections of the General George Crook Trail and provide a safe Rim road system for users.
		Fire Management Planning and Analysis
Protection		Ponderosa Pine and Mixed Conifer - Suppression objective is 100 acres or less. Use prescribed fire with planned and unplanned ignitions is used to meet resource objectives.
		In riparian areas fight fire aggressively, if necessary, to prevent resource damage, using suppression methods that minimize long-term adverse impacts to riparian habitats.

Program
Components Activities Standards and Guidelines

In developed recreation sites the suppression objective is to minimize damage to improvements and/or resources.

Prescribed fire using planned ignitions is used as a management tool where such use is compatible with other resources.

Fuel treatment projects in natural fuels are aimed at creating and maintaining a natural fuel condition that is maintained through the periodic use of prescribed fire.

Emphasize using slash for firewood. Unless there are documented resource or protection needs, leave slash for at least 2 years before disposal. Clearly identify free-use firewood areas to assist the public in removing wood residues and thereby reducing future slash disposal costs. Provide easy to follow maps and signing for designated firewood areas.

Highway 180 Travel Corridor Milepost 220-250

Management Area 20

Acres: 7,608

The Highway 180 Travel Corridor goes from the northwest side of Flagstaff to the most northwestern corner of the Coconino National Forest. It is one of the three main routes leading to the Grand Canyon National Park. The entire existing road is two 12 foot travel lanes with 1 foot paved shoulders. Currently the trees are as close as 5 feet to the roadway. The current situation does not allow for a recovery area that is a traverseable and unobstructed roadside area allowing drivers leaving the roadway out of control to regain control or come to a safe stop.

Vegetation includes ponderosa pine and patches of aspen, which then give way to pinyon/juniper as the elevation drops on the northern edge of the Forest.

Fire history has been sporadic, with a number of large wildfires adjacent to or crossing the Highway.

The diverse vegetation and spectacular views of the San Francisco Peaks make it an important scenic, historic, and recreational attraction.

Highway (Hwy) 180 began as a dirt road in 1943 and was completely paved by 1959. Early uses were local forest use and tourism. More recent use is 2,000 average number of vehicles over entire length of road and a predicted 2,800 average number by the year 2002.

Today, Hwy 180 is a destination in itself for local residents and tourists for scenic beauty and outdoor recreation. Hwy 180 is used as a tour bus, commerce route, local and tourist drive between National Forest land, Flagstaff and the Grand Canyon, with over half of the drivers from out of State.

There have been 10 fatal accidents with 13 people killed in the last 6 years (1987-1992). There have been 433 non-fatal accidents with 314 people injured. Drivers run off the pavement and hit something, usually a tree. Some people drive too fast, causing them to lose control. Vehicles hit animals. Intersections are not as safe as they could be. Plowed snow piles up on the highway, thaws and melts and runs across the highway then freezes again causing icy spots and damaging pavement. People park along the highway and on soft shoulders, affecting the flow of through traffic. Bicyclists use the highway with virtually no shoulder and cars must drive around them. Tourists are often not aware that highway 180 is a mountain road with curves, steep hills and few places to pass safely. Hwy 180 climbs approximately 1,000 feet in elevation and weather conditions are often more extreme than in Flagstaff. Tourists may misjudge the time it will take them to reach their destination or may be unaware of the potential hazards of inclement weather.

Management Emphasis

Hwy 180 will be maintained and managed now and in the future as a two lane scenic highway. With strong value in its own right as a scenic attraction, the road provides important access to year round outdoor recreation and the South Rim of the Grand Canyon. Hwy 180 is one of three roads to the Grand Canyon and will be managed and emphasized as the scenic, slower route. Hwy 180 will offer a reasonably safe and scenic travel experience through a healthy, diverse forest.

The key factors necessary for reaching this vision are:

- A reasonably safe roadway and recovery area;
- Driver compliance with posted speed limits;
- Public understanding of road conditions;
- Forest Management.

Highlights include:

- Manage Hwy 180 and its foreground as a sustainable and resilient ecosystem with an emphasis on large trees and stand diversity. There will be sustainable, healthy communities of aspen, ponderosa pine and pinyon juniper with a large percentage of the corridor containing large old trees. Hwy 180 will have a retention visual quality objective.
- Introduce a level of visual diversity in the driving experience. Viewing the the forest is a sequential linear event.
- Improve the shoulders and recovery area so as to increase the percentage of errant vehicles that are able to recover safely. A recovery area is a traverseable, unobstructed roadside area that allows drivers leaving the roadway out of control to regain control or come to a stop.
- Provide opportunities for parking to rest, take pictures, and access forest roads and trails.
- Provide information and interpretive signs for improving driver awareness and safe driving as well as improve visitor experience through understanding of the environment, history, and cultures.
- Aggressively pursue partnerships with city organizations to inform the touring public about scenic road status, road conditions, and other route options.

Standards and Guidelines

Right of Way Grants for Roads and Trails

Lands

All ADOT projects for management of the two lane scenic highway will occur with Federal Highway Administration (FHWA) assuming the role of lead Federal agency. ADOT will follow FHWA NEPA guidelines with Forest Service providing input. Forest Service input on ADOT highway improvement projects will include stipulations derived from the Final Vision and Guiding Description Document and the Forest Plan.

On-the-ground implementation of all projects within the corridor should occur with an inter-agency interdisciplinary team approach. This team should work out site

Standards and Guidelines

specific coordination for wildlife travel areas, seed mixes, and the blending of scenic quality, and safety.

ADOT and FS will work cooperatively to sign the highway with the objectives of informing and warning drivers where needed, providing interpretation of the adjacent forest lands and blending sign design and location with the scenic character of the highway.

Visitor Information Services-Standard Service Level Management

Same as Forest-wide Standard and Guidelines. "Provide timely reprints of major brochures and guides. Write and develop new information as needed to increase public awareness of recreation opportunities and hazards. Review printed information annually to determine needed updates."

Provide the touring public with a greater understanding, appreciation and therefore enjoyment of the forest environment and history of the area.

Work cooperatively with local private, city, county and State organizations to share information between the Forest Service and these groups. Through these partnerships, inform the touring public of road conditions, speed limits, scenic and recreation opportunities and other routes available.

Visual Resource Planning and Inventory

Same as Forest-wide Standard and Guidelines "prepare a viewshed corridor implementation schedule during the first decade for the interstate highways, US Highways 89, 89A and 180; ...". This plan amendment and implementation process by an interdisciplinary team will provide the viewshed corridor implementation schedule.

Recreation Planning and Inventory

Manage for VQO of foreground Retention on Hwy 180.

Provide places where people can pull off the road, get out of their cars, read information signs, take pictures, rest, and access Forest roads and trails. Maintain Kendrick Park Picnic Area.

Construct two new parking sites for summer and winter use. Their locations will be approximately 1 mile east of Snow Bowl road intersection and somewhere in the vicinity of the Walker Lake curve. Evaluate the need for future parking areas.

Nonstructural Wildlife Habitat Improvement

The objectives of seed mixtures to be used in disturbed areas are to hold disturbed soil in place, add color and texture to the scenery, be non-palatable to large grazing animals, and consist of native species to the extent possible. It is important to not attract large grazing animals to the side of the highway.

Standards and Guidelines

Habitat Access Controlled by Closures

Manage local and temporary roads intersecting with Hwy 180 as needed to enhance wildlife habitat, dispersed recreation and safety .

Range Resource Planning and Inventory

The area within the right-of-way is not part of grazing allotments. The rest of the corridor makes up a small percentage of the adjacent allotments. Management of range lands within the rest of the corridor will be similar to Forest-wide and adjacent management area Standards and Guidelines for range resource planning and inventory.

The right-of-way fence will be maintained by ADOT.

Timber Planning and Inventory

Management for the ponderosa pine/mixed conifer stands is the same as MA 3, foreground Retention and for areas adjacent to foreground Retention lands. See MA 5 and Amendment #7 for direction for the aspen stands.

Stands of trees adjacent to the recovery area are blended with the recovery area to meet visual quality objectives and management emphasis for this area.

Site specific tree removal adjacent to the recovery area will be established on the ground by a design team. The design team, consisting of Forest Service representatives, ADOT employees, and other interested agencies and citizens will design areas site specifically. Tree clearing will vary, taking advantage of natural openings, with emphasis on retention of older yellow bark ponderosa pines.

Old-Growth:

The Hwy 180 corridor itself will not function as old-growth because it is a linear corridor. However, much of the corridor will have old-growth characteristics in keeping with visual quality guidelines described above.

Wildlife Cover

On-the-ground design of the recovery area and adjacent stands will include maintenance of large animal movement to and from areas on either side of the highway. Factors such as density of trees, location of right-of-way fence and topography will be considered.

Snag Management

See MA3 for snag management except within right-of-way where snags may pose safety hazard as determined by ADOT.

Standards and Guidelines

Fire Prevention

Forest-wide Standards and Guidelines.

Fire Suppression

Forest-wide Standards

Fuel Treatment

Slash work may include piling, lop and scatter, pile burning, broadcast burning, chipping and hauling.

Prescribed fire using planned ignitions is used as a management tool where such use is compatible with other resources.

Slash for fuelwood may be emphasized where practical depending on access from forest roads and whether or not there is a need to more quickly dispose of slash to meet visual quality or fire risk management needs.

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My interest is in the future because I am going to spend the rest of my life there.
~Charles F. Kettering

INTRODUCTION TO AMENDMENT 12

WHAT IS AMENDMENT 12 AND HOW IS IT ORGANIZED?

The Amendment to the Forest Plan for the Sedona Area - Amendment 12, describes the future vision and direction for the National Forest lands in the Sedona/Oak Creek area. (Refer to Map 1 - Planning Area) The Amendment:

- replaces some portions of the Forest Plan,
- provides more detail for management direction, and
- provides some new management policies.

The Sedona/Oak Creek Area Amendment is part of the Coconino Forest Plan. Some of the Forest Plan's management direction remains in effect for the Sedona area, so the entire Plan and all of its other amendments must be used together.

Amendment 12 has Sedona area-wide direction, which applies to the entire Sedona/Oak Creek Ecosystem. This information is followed by more specific direction for the newly created Management Areas (MAs): Dry Creek Basin (MA 21) through Transition (MA 29), and modified management direction for three existing MAs: Wilderness (MA 1), Oak Creek Canyon (MA 14) and Special Areas - Research Natural Areas (MA 17)[*] (Refer to Map 4 - Management Areas).

Within Amendment 12, information is arranged from general direction (area-wide direction) to more specific information (MA). Each of the MAs includes a brief description of the physical location and a list of the MA emphases.

The text is grouped by goals, objectives, standards and guidelines[†]. The goals and objectives set the overall focus/direction for the types of activities that are consistent with the overall vision developed for the Sedona area. Though all of

[*] The three existing MAs whose direction has been changed and/or clarified are: Wilderness (MA 1), Oak Creek Canyon (MA 14) and Special Area (MA 17). The Wilderness direction has been modified for three Congressionally designated wildernesses: Red Rock-Secret Mountain, Munds Moutnain and Sycamore Canyon. The modified direction replaces existing direction in the Forest Plan, while the rest of the wilderness direction remains unchanged. The Amendment replaces all direction for Oak Creek Canyon. The direction for the Special Area has changed for the West Fork of Oak Creek and Casner Canyon RNAs.

[†] A goal is a concise statement describing a desired end result and normally expressed in broad general terms. Objectives describe measurable desired resource conditions, or ranges of conditions, intended to achieve Forest Plan goals. Standards are limitation on management activites that are within the authority and ability of the agency to meet or enforce. Guidelines describe a preferred or advisable course of action.

the management direction needs to be applied to subsequent site-specific projects, the standards have the force of law and/or regulation behind them and will require a Forest Plan amendment

If future change is needed. Guidelines may be varied from without a Forest Plan amendment if subsequent site-specific NEPA analysis provides adequate reasoning for variance from the guidelines. However, this should be the rare exception and not the rule.

Amendment 12 has been published in two forms: as punched replacement pages for a three-ring binder version of the Forest Plan and as a separate document for people focusing on Amendment 12.

The accompanying Decision Notice describes the logic behind the final choices for the management direction. This information will be useful for people implementing the Amendment, especially those who were not involved in its creation.

The Forest Plan Additional Replacement Pages section contains pages from the Plan that have minor adjustments. Most of the adjustments are changes in acreage due to the changing of existing MAs. Changes are indicated as bolded text. All of the changes for the Forest Plan are summarized in the following Digest.

One touch of nature makes the whole world kin.

~ William Shakespeare

VISION AND GUIDING PRINCIPLES

A SHARED VISION FOR THE REDROCK COUNTRY

In the redrock country surrounding Sedona and in Oak Creek Canyon, one can see in remarkable form and color how the natural world appeared millions of years ago. Monumental buttes, soaring multi-hued cliffs, fantastic towering spires and rugged canyons bombard the eye and the senses; vast sweeps of greenery refresh and inspire our spirit and fill us with expectation.

Unified by Oak Creek, the vital riparian link between the Mogollon Rim and the Verde Valley, the landscape is a museum of life, a living crossroads connecting us in time and space. There is no other region on earth exactly like it.

With its intriguing human history and remarkable natural environment rich with plants and wildlife, redrock country offers individuals and families the gifts of discovery, inspiration and solitude. When wandering the Sedona/Oak Creek ecosystem, we are free to imagine, to explore and to reconnect with the land. Through this landscape we can experience a rebirth of awe and a renewal of spirit.

> There is cause for hope. Opportunities abound. The challenge can be met.

We appreciate that the area has been cherished by people for the past 10,000 years. Remarkably, in spite of heavy human impacts in recent years, the landscape remains alive with the spirit of the past. New strategies and actions to protect, enhance and interpret scenic, biological and cultural values will help sustain this special place for the next 10,000 years.

Guiding Principles

We recognize the national and international importance of the Sedona/Oak Creek ecosystem. We respect the links between ourselves, all human activities and the natural world, and realize that the environment is a sensitive and limited living system in need of actions to sustain and enhance it. We will not regard the area as a potential theme park for commercial exploitation at the expense of nature. We will not sell the day to profit the hour.

Our actions will reflect a variety of interests and will be based on honest dialogue and responsible, creative partnerships with the community and with local and state governments. Together with the Forest Service, these partners will endorse and take actions to improve the stewardship of the land. We will honor the need to act collaboratively in order to preserve the area's values for future generations.

The world we have created today, as a result of our thinking thus far, has problems which cannot be solved thinking the way we thought when we created them.

~ Albert Einstein

GOALS, OBJECTIVES, STANDARDS AND GUIDELINES FOR THE ENTIRE SEDONA/OAK CREEK PLANNING AREA

Plants, Wildlife, Soil, Air, and Water

Goals

1. The biological, physical and human elements of the landscape sustain ecological processes, functions and structures within a natural range of variability and conditions appropriate to the Sedona/Oak Creek ecosystem. Natural ecosystem disturbance patterns are conserved or restored consistent with human health and safety.

2. Habitats support diverse, healthy populations of native plants and animals. A natural variety of plant species, age classes and structure is present.

3. Natural elements of the landscape are restored and protected. Threatened, endangered and sensitive species are recovering. Appropriate actions are taken to minimize impacts to these species.

4. Riparian communities have adequate in-stream flows and adequate plant cover to protect stream banks and dissipate energy during high flows. Channel characteristics and water support natural biodiversity.

5. Soil function and long-term productivity are sustained so that the soil can resist erosion, recycle nutrients and absorb water.

6. Fire should continue to play a natural ecological role within the constraints of human health and safety. The mosaic of vegetative patterns and conditions reduces the occurrence of catastrophic fires.

7. **Refer to Forest-wide direction in Amendment 20, 11/2004, page 23.**

Objectives

1. Improve and protect water quality and long-term soil productivity and restore critical soil functions through such methods as:

   - improving the rate of water infiltration, thereby reducing on-site soil loss and minimizing surface runoff and sedimentation;
   - enhancing soil organic matter content to improve physical condition and increase nutrient cycling;
   - reducing flood potential and securing favorable conditions of water flow;
   - increasing and improving the distribution of vegetative ground cover and coarse woody debris;
   - setting livestock capacities to levels that maintain and/or improve soil stability, soil productivity and water quality;
   - locating new trails away from riparian communities, steep grades and sensitive soils;
   - hardening trail and road surfaces and providingsanitation facilities at key places; and
   - improving road and trail maintenance.

2. Seek out, use and share information from researchers, agencies and other individuals with knowledge about the southwestern willow flycatcher, brown-headed cowbird parasitism, predation and other related issues. Keep current on new information and make changes in the management of southwestern willow flycatcher habitat and populations accordingly.

3. Engage in activities that will maintain or enhance south western willow flycatcher habitat.

4. Eliminate unneeded roads and redesign or relocate poorly located roads and trails to lessen impacts on such resources as cultural sites, soil, water and wildlife and to reduce user conflicts. Restore areas heavily damaged by vehicle or foot traffic using such methods as obliteration, barriers, closures and visitor information.

5. Manage Hedeoma diffusum by the direction presented in the ``Hedeoma diffusum Management Plan (1984)'' adopted by the Forest Plan.

6. Protect occupied Cimicifuga Arizonica habitat. Restrict ground-disturbing activities within the habitat and provide shade needed for perpetuation of the species. Relocate trails where necessary to protect occupied habitat. Implement conservation actions recommended by the ``Cimicifuga Arizonica Conservation Plan (1995).''

7. Expand the use of prescribed fire along with other mechanical methods to achieve area goals.

8. Fire management activities should:

   - protect resource values, such as property and riparian and scenic elements;
   - reduce natural and activity-generated fuels to lessen the risk of catastrophic fire; and
   - restore ecosystem functions.

9. Maintain adequate plant cover/security for wildlife habitat needs. Retain dead and down woody materials, such as logs, limbs and flood debris, in riparian communities for prey base habitat.

10. Forest product removal, both personal and commercial, such as firewood gathering, Christmas tree cutting and livestock grazing, should be designed to maintain or restore ecosystem health and meet Sedona/Oak Creek Planning Area goals.

11. Work with air tour companies and rock climbers to eliminate disturbing activities near occupied eyries during the peregrine falcon breeding season (March 1 to August 31) and to protect other raptor species.

12. Work with the Federal Aviation Administration (FAA), Sedona Airport Administration and air tour operators to minimize the effects of aircraft on threatened, endangered or sensitive animal species. Consider implementing special flight rules, particularly over suitable peregrine falcon nesting habitat and big game winter ranges such as on Schnebly Hill rim, Munds Mountain, Lee Mountain, Casner Mountain and Black Mountain.

Standards

1. Enforce native plant protection laws and prohibit plant collection without appropriate permits. Require special use permits to collect plants for commercial activities, such as landscape and ornamental purposes. These permits are granted only for locations in the Savannah MA (MA 27).

2. Restrict aircraft activities related to commercial filming to protect threatened, endangered and sensitive species.

3. Restrict motor vehicles to system roads and trails in the planning area, except as authorized by permit.

4. Protect the water quality of Oak Creek to assure public safety and meet State water quality standards.

5. For the southwestern willow flycatcher:

   - conduct site visits to identify suitable and potential habitat;
   - inventory suitable habitat to locate nesting flycatchers;
   - monitor sites currently and previously occupied;
   - maintain and enhance suitable and occupied habitat;
   - ensure that potential habitat progresses toward suitable habitat; and
   - minimize disturbance to nesting birds.

Guidelines

1. In general, the following guidelines (1 through 8) should be applied to threatened, endangered and sensitive species. If analysis or new information suggests a modification of these guidelines is needed, consultation with the US Fish and Wildlife Service (USFWS) must occur.

2. Communicate and cooperate with the USFWS and the Arizona Game & Fish Department (AG&FD) on efforts related to all threatened and endangered species.

3. Maintain riparian pasture and riparian exclosure fences to prevent livestock trespass, which can result in the degradation of threatened, endangered and sensitive species habitat.

4. Apply the ``Peregrine Falcon Recovery Plan'' and Addendum[*]. In addition, apply the following modifications, which reflect new information:

   - locate new trail and trailhead developments at least a quarter but preferably a half mile from known peregrine falcon eyries;
   - limit maintenance and construction of trails and trailheads located within half a mile of eyries during the breeding period from March 1 to August 31;
   - prohibit blasting within one mile of an eyrie during the breeding season;
   - survey all suspected peregrine falcon nest sites for occupancy prior to any new Forest Service activity occurring within half a mile of the nest;

[*] U.S. Fish and Wildlife Service. 1984. American Peregrine Falcon Recovery Plan (Rocky Mountain/Southwest Population). Prepared in cooperation with the American Peregrine Falcon Recovery Team.
U.S. Fish and Wildlife Service. 1993. Draft Addendum to the Pacific Coast and Rocky Mountain/Southwest American Peregrine Falcon Recovery Plans.

- conduct any construction associated with closing roads located within 0.5 mile of an eyrie during non-breeding seasons;
- conduct any construction, reconstruction or maintenance of roads located within 0.5 miles of an eyrie during non-breeding seasons;
- conduct prescribed burning only if prevailing winds will avoid inundating active peregrine falcon nests with smoke; and
- restrict fuel reduction activities that use motorized equipment such as vehicles, chain saws or chippers to at least a quarter mile from active peregrine falcon nests during the breeding season.

5. Personnel conducting inventory or monitoring for threatened, endangered or sensitive species must obtain permits and attend inventory and monitoring training prior to conducting these activities.

6. Compile, map in GIS and file in an electronic corporate database information obtained from threatened, endangered or sensitive species site visits, inventory and monitoring efforts.

7. Evaluate recreational impacts at sites with occupied, suitable or potential southwestern willow flycatcher or Mexican spotted owl habitat. Actions to minimize or remove adverse impacts may include, but are not limited to, area closures (seasonal or year-long), limits on group-use size, road closures, interpretation and education, fencing, special use permit requirements and trash management.

8. Southwestern willow flycatcher:

   - Activities in occupied or suitable habitat must not reduce the suitability of the habitat nor disturb nesting birds during the breeding season.
   - Coordinate with the USFWS, AG&FD and any other agency or organization involved in ongoing research to determine monitoring needs for occupied southwestern willow flycatcher sites. information needs and site-specific considerations are important to determine the monitoring intensity/frequency and implementation strategy for monitoring occupied sites.
   - Exclude livestock grazing in occupied southwestern willow flycatcher habitat to avoid direct impacts to flycatchers and their habitat. Allow grazing in occupied southwestern willow flycatcher habitat outside of its critical season only where flycatcher research is occurring under a research plan approved by USFWS and other project cooperators.

- Implement brown-headed cowbird control programs based on USFWS consultation requirements and site-specific determination of need.
- Occupied and suitable habitats should be inventoried annually to determine the presence of southwestern willow flycatchers. If inventory does not occur, the guidelines for occupied habitat apply.
- Site visits to potential habitat should be conducted every few years in order to document the area's progression toward suitable habitat characteristics.
- Activities in southwestern willow flycatcher potential habitat should not slow or prevent potential habitat from progressing toward suitable habitat conditions.
- Coordinate with fire management personnel to develop a strategy for responding to wildfires that could threaten occupied, suitable or potential southwestern willow flycatcher habitat.

9. Use Terrestrial Ecosystem Survey (TES) information to determine capability, suitability, potentials and limitations of soils for different land management uses and desired conditions and to predict the behavior and performance of soils.

10. The following riparian standards are repeated here for clarity but have not changed from the existing Forest Plan direction:

    - maintain at least three age classes of woody riparian species, with at least 10 percent of the woody plant cover in sprout, seedlings and saplings;
    - retain snags in riparian communities if they are not a safety hazard.

11. Collaborate as needed with Federal or State agencies for the reintroduction and maintenance of native plant and wildlife species.

12. Encourage use of certified exotic- and weed-free pelletized feed or hay, especially in Wildernesses, to reduce the spread of undesirable plants.

13. Restrict National Forest visitor activities from any area as needed to support soil and plant restoration efforts.

Scenery

Goals

1. Provide and maintain high-quality opportunities for people to enjoy the Sedona area's many scenic and aesthetic qualities.

2. Cultural and historic features are recognized for their inherent scenic values.

3. Evidence of human activities and developments such as roads, trails and facilities, is visually subordinate to the natural-appearing landscape.

4. Except in the Neighborwoods, Oak Creek Canyon and Redrock Frontcountry MAs, visitors see a landscape that appears to be largely unaltered by human influence and where natural elements and the visible effects of natural processes predominate.

5. Long-term soil and plant productivity, properly functioning ecosystems and clean water are considered important components of scenic quality.

6. Scenic quality meets public expectations.

7. Views of dramatic natural features are protected and enhanced.

8. Views of the night sky remain unaffected by human light sources.

Objectives

1. Activities by National Forest visitors protect the scenic quality of the Sedona/Oak Creek Planning Area. This includes activities conducted by other agencies such as the Arizona Department of Transportation (ADOT), local governments, and land use activities conducted by commercial or private entities.

2. Facility design and location retain and enhance the traveler's sense of arrival at a special place.

3. The design of National Forest developments such as trailheads and campgrounds is consistent with the appropriate ROS setting objectives. (Refer to Map 3 - Recreation Opportunity Spectrum Objectives)

4. Commercial tours blend visually into the landscape and do not draw attention to the activity or equipment.

5. Developments such as roads, trails, camping and day-use sites and trailheads borrow from local materials and landscape characteristics to blend with the adjacent naturalappearing landscape. Management activities such as firewood harvest and prescribed fire result in alterations that appear natural to most visitors.

Guidelines

1. Achieve scenic quality recovery in the shortest possible time.
2. Complete scenic resource assessments for developments and projects on National Forest lands that could affect scenic quality. Include evaluation of cumulative effects.
3. Follow scenic management guidelines established under the Forest Service Scenery Management System (SMS) and Guidelines for Highways on National Forest Land (ADOT and USFS, 1994).
4. Protect native plants to the extent possible by site design and mitigation measures during construction. Develop native plant rehabilitation measures for disturbed areas to speed scenic quality recovery. Use methods that result in a natural vegetative composition and pattern.
5. Avoid placement of new structures where they will interfere with scenic views from primary viewing areas such as highways, recreation sites, trails and residential areas. Use natural land forms and vegetation to the extent possible to screen facilities from important viewing locations.
6. Bury utility lines such as pipelines, power lines, fiber optic lines and telephone lines unless there are overriding environmental or technical concerns that would prevent burial. Existing utility or road corridors should be used for the placement of new utilities.

Prehistoric and Historic Archaeology

Goals

1. Contemporary American Indian values are respected and considered in Forest Service management.
2. Human uses support the stewardship of cultural resources. Visitors and residents understand and respect the fragile cultural resources of the Verde Valley. People know and act within the laws that apply to archaeological sites and resources.
3. National Historic Register resources are protected, enhanced, interpreted and available for research and/or visitation. The Sedona/Oak Creek Planning Area is recognized as an outdoor museum and classroom for the study of historic, prehistoric and contemporary cultural heritage.

Objectives

1. Ensure appropriate protection measures are in place at cultural interpretive sites.
2. Allow for a “sense of discovery" at cultural interpretive sites.
3. Archaeological site etiquette information is readily available to National Forest visitors.
4. Encourage partnerships with American Indians, commercial ventures, volunteers and universities for documenting, preserving, interpreting and managing sites and to evaluate and develop creative management opportunities.
5. Identify Traditional Cultural Properties and consult on their management with the appropriate American Indian communities. Traditional Cultural Properties (TCP) are recognized, respected, preserved and managed for continued traditional uses.
6. Identify and retain evidence of valued historic/prehistoric landscape elements, such as orchards, fields, ditches, buildings and ruins.
7. Inventory distinctive historic features and recognize their interpretive potential.
8. Inventory historic trails and wagon roads and determine their feasibility for use as non-motorized trails. Include the Old Munds Highway, the Old County Road and the Lime Kiln Road.
9. Complete cultural surveys of all Forest system trails in order to facilitate maintenance and reconstruction activities.
10. Implement stabilization and conservation programs at damaged sites.
11. Eliminate unofficial trails that lead to archaeological sites to protect sites from damage.
12. Eliminate effects of aircraft on cultural resources.

Standards

1. Prohibit uses on archaeological or historic sites that cause site damage and/or that are inconsistent with the protection and use of Traditional Cultural Properties.

Guidelines

1. Consider a full range of methods to mitigate or minimize impacts on cultural sites, such as:

- redesign or cancellation of a proposed project;
- site avoidance, data recovery, interpretation or adaptive reuse;
- fill on top of sites;
- relocation of a resource;
- fencing, barriers, restricted access and site closures;
- interpretation and documentation; and
- discouraging commercial marketing of archaeological sites.

2. Prohibit commercial filming at cultural sites.

Community

Goals

1. Harmony exists between residents and visitors. Residents have a sense of safety and security concerning National Forest lands directly adjacent to residential development.

2. Land ownership patterns of private holdings and National Forest meet the needs of the community and achieve National Forest goals.

3. The community shares National Forest stewardship goals. Community members understand their stake in ecological health and collaborate in National Forest decisions that are mutually beneficial to the National Forest and the community.

4. The Forest Service provides leadership in planning efforts that involve National Forest/community interface issues and multiple-agency jurisdictions.

Objectives

1. **Refer to Coconino Natinal Forest Land and Resource Manamgnet Plan pages 84-88 for additional land acquisition policy direction.**

2. Acquire priority private parcels from willing sellers, when possible, through methods other than land trades within the planning area.

3. Cooperate with local governments to identify and maintain appropriate trail access on private lands through the private land development process.

4. Protect community values by reducing fire hazard and risk. Update the Fire Prevention Strategy and address the fire risk and hazard that exist in the urban interface.

5. Ensure that residents adjacent to National Forest lands understand the natural environment and are partners in managing the neighboring Forest lands for public use and resource protection.

6. Collaborate with local governments, agencies and residents to protect resources and address residents' concerns.

7. Work with land owners and local and regional governments to encourage private land uses that are compatible with National Forest goals for the Sedona/Oak Creek Ecosystem.

8. Collaborate with local and regional governments and transportation agencies to meet future local and regional transportation needs, including the design and location of roadway improvements and routes and alternative modes of transportation.

9. Collaborate with local and regional governments in regional planning efforts to achieve land use patterns and land development consistent with community and National Forest goals.

10. Work with local and regional governments and road agencies to develop transportation solutions that reduce traffic and vehicle impacts on National Forest lands. Consider solutions that:

    - restrict recreation site access to shuttle only;
    - provide land for park-and-ride solutions;
    - create incentives for the use of shuttles and other high-occupancy vehicles;
    - place limits and fees on parking; and
    - encourage alternative modes of transportation.

Standards

1. Land exchanges that dispose of National Forest in the Sedona/Oak Creek Ecosystem will occur only if they result in acquisition of National Forest lands in the Sedona/Oak Creek Ecosystem.

2. Base-for-exchange lands are National Forest lands located at:

    - Brewer Road (approximately 21 acres, Neighborwoods MA),
    - Chapel of the Holy Cross (approximately 11 acres, Neighborwoods MA),
    - Slide Rock area (approximately 13 acres, Oak Creek MA),
    - Village of Oak Creek Golf Course (approximately 5 acres, Neighborwoods MA) and
    - The Dells (up to 800 acres, Gateway and Savannah MAs).

3. Land exchanges that dispose of National Forest land in The Dells area will occur only if they result in acquisition of high-priority private parcels elsewhere in the Sedona/Oak Creek Ecosystem. High priority private parcels total approximately 783 acres. (Refer to Map 2 - Base-for-Exchange/Priority Acquisition Lands) High-priority land acquisition parcels include:

    - Lincoln Canyon,
    - Woo Ranch,
    - Hancock Ranch,
    - Bradshaw Ranch,
    - Tree Farm,
    - Cockscomb and
    - Tucker Property.

4. Secondary priority land acquisition parcels include: Johnston, Bill Gray Ranch, Windmill Ranch, Thompson, Deer Pass and Long Canyon (Seven Canyons).

5. To comply with the National Environmental Policy Act, the appropriate level of environmental analysis and public involvement will be conducted for any land exchange or disposal.

Guidelines

1. Consider the effects of potential land development on infrastructure (such as transportation and sewer); utilities (such as water and power); and adjacent National Forest, private lands and other public lands in all land exchange proposals.

2. Discourage new utility corridors on National Forest lands. When no other alternative exists, combine new utilities with existing utility corridors or road/trail corridors.

3. Encourage open space designations on private land between private development and National Forest lands as a buffer to minimize conflicts between residents and other National Forest users.

4. Encourage local governments to consider transportation and energy efficiency, recycling, water conservation and increased environmental sensitivity when working with local and regional governments and concessionaires on National Forest lands.

5. National Forest parcels less than or equal to 10 acres in size could be disposed of under the Small Tracts Act, Townsite Act or General Exchange Act to resolve encroachment issues or provide lands needed for public purposes.

6. Encourage local governments and private parties to use such methods as deed restrictions, development agreements, joint planning authority and master planning to mitigate effects from future land exchanges on the community and National Forest.

7. Encourage local governments or agencies, private landowners and/or other appropriate entities (e.g. Nature Conservancy, Trust for Public Land, local land trust) to protect the resources and character of National Forest surrounding high priority private parcels through methods such as, conservation easements, land trust management, deed restrictions, or public acquisition.

Recreation

Goals

1. Offer exceptional day-use recreation activities. National Forest camping continues to be an important recreation experience, but day-use opportunities are more abundant.

2. There is a range of nature-based recreation opportunities that provide a wide array of benefits by meeting people's needs and preferences while sustaining the Sedona/Oak Creek Ecosystem.

3. Appropriate degrees of natural quiet are restored and maintained.

4. Emphasize opportunities for individuals, families or small groups and opportunities for experiencing solitude, scenic beauty and natural quiet. Recreation opportunities are primarily nature based. Both short and long visits are available.

5. Recreation activities and facilities meet visitor needs and are consistent with ecological goals and recreational opportunity spectrum (ROS) objectives.

6. Recreation user conflicts are minimal and the recreation experience is healthy and safe.

7. Recreation activities and facilities protect water quality and the aquatic/riparian community.

8. Visitors have access to high-quality trail experiences.

9. **Recognize the strong demand for inspirational and contemplative benefits in the natural landscape and provide settings that contribute to these benefits.**

Objectives

1. Manage some places for high levels of visitation and to meet the demands of day-use activities that emphasize scenic viewing, hiking and experiencing and learning about the natural environment and cultural resources. Manage some places for an uncrowded setting.

2. Provide leadership to coordinate recreation and visitor information planning among major recreation providers, such as Red Rock State Park, Crescent Moon Ranch Recreation Site, the Chamber of Commerce, the City of Sedona, Big Park Coordinating Council and the Cultural Park.

3. Increase opportunities for Semi-primitive and Primitive ROS experiences to better meet the high demand for this type of recreation setting.

4. Ensure that most National Forest visitor activities occur at developed sites and on trails designed for high levels of use.

5. Ensure that recreation site fees are reasonable to enable low- and moderate-income families to access recreation in the Sedona/Oak Creek Ecosystem.

6. Identify a network of roads at various challenge levels for off-highway vehicle touring. Focus OHV activity in the Savannah and Schnebly Rim MAs, although opportunities may be available in other management areas. Limit this activity in the Neighborwoods, Oak Creek Canyon, Transition and Redrock Frontcountry MAs, consistent with ROS and resident concerns. Exceptions include Casner Powerline Road, Broken Arrow and Soldier Pass four-wheel-drive roads.

7. Eliminate, redesign or relocate unneeded or poorly located roads and trails to lessen impacts on such resources as cultural sites, soil, water and wildlife and to minimize user conflicts.

8. Expand opportunities for scenic viewing along roads and trails.

9. Ensure that aircraft operations are conducted so as to eliminate or reduce noise impacts on visitors and restore and protect appropriate levels of natural quiet.

10. Protect sensitive archaeological and biological sites by reducing public access and informing visitors more thoroughly.

11. Reduce the need for and impacts from parking areas and traffic on National Forest land by expanding opportunities for biking, ride sharing and alternate types of transportation, such as shuttles or other mass transit.

12. Improve National Forest trailheads and develop additional trailheads as identified in Appendix B - Trailhead List.

13. Consolidate multiple-trail plans that apply to the Sedona/Oak Creek Ecosystem into one plan called The Redrock Trail Plan. (Refer to Map 6 - Redrock Trail System and Appendix B - Trailhead List) The Plan should:

    - complement the transportation and other goals of the community and Forest Service;
    - include a variety of non-motorized trails such as: narrow rugged Wilderness trails, high-use trails to allow access to popular areas, wide gentle and hard-surfaced ``pathways,'' and a variety of loops and neighborhood links;
    - disperse users to areas designed to accommodate trail use while protecting resources and community values;

- offer a variety of opportunities for day trips;
- provide effective connections between nearby resorts, residential areas and National Forest;
- define criteria for National Forest user satisfaction and schedule periodic surveys to monitor user sat isfaction to minimize impacts on Wilderness values;
- promote shared trails, not single-use trails;
- provide outstanding trail experiences that help people experience the diverse environment of the redrock country; and,
- locate trails to take people where they want to go.

14. **Some forest sites are a destination for visitors with interest in the spiritual landscape, including, but not limited to, locations at Bell Rock, Boynton Canyon, Cathedral Rock, Schnebly Hill and Table Top Mesa. Where possible provide access to these sites with opportunities for contemplative reflection and scenic vistas, and provide access for older people and people with disabilities seeking opportunities for regenerative reflection.**

Standards

1. Camping and campfires are prohibited in the Neighborwoods, Oak Creek Canyon, Redrock Front- country, Gateway, Red Cliff, Dry Creek Basin, Special Area and Transition MAs except in designated places.
2. Off-road driving is prohibited within most of the Sedona/Oak Creek Ecosystem, except under rare circumstances by permit.

Guidelines

1. Limit dispersed camping to locations that protect resources, provide neighborhood security and protect the National Forest visitor's quality of experience.
2. Additional camping and campfires restrictions may be needed, depending on the results of future monitoring.
3. Until such time as monitoring or new information provides improved methods to achieve the goal of restoring and protecting natural quiet in the planning area, the following actions are recommended.
   - Prohibit all landing of commercial aircraft on National Forest lands within the planning area, except for emergency or management needs.
   - Adjust the activities of Forest Service permitted hot air balloon companies to reduce the impact of their activities on residences and wildlife.

- Adjust the operations of Forest Service and management flights of other agencies, such as the AG&F, as feasible to reduce noise impacts.
- Develop a monitoring program to determine if goals and objectives are being met.
- Consult with local governments to gain their cooperation in helping to ensure that aircraft operations do not adversely affect natural quiet on National Forest lands.
- Seek assistance from the Sedona Airport Administration to inform pilots about ``noise-sensitive'' areas, such as Wilderness, Cathedral Rock and Oak Creek Canyon and to request that pilots avoid hovering, circling or overflying these areas below 7,500 feet or 2,000 feet AGL, whichever is higher.
- Work with the Department of Defense to eliminate military air operations below 7,500 feet MSL or 2,000 feet above the canyon rim, whichever is higher.
- Gain cooperation from the aviation community, including air tour operators and general aviation pilots, to achieve the restoration and protection of natural quiet in the Sedona/Oak Creek Ecosystem.
- Request the FAA to gain pilot compliance with existing flight rules and advisories and to determine the need for a Special Federal Aviation Regulation (SFAR) or other airspace management plan that achieves the restoration and protection of natural quiet in the Sedona/Oak Creek Ecosystem.

5. Close trails and roads where impacts on cultural and biological resources are unacceptable.
6. Complete ROS assessments for projects on National Forest lands that could change recreation settings. Use the ROS as a tool to adjust management and protect and restore the recreation experience. Use the matrix on Map 3 - Recreation Opportunity Spectrum Objectives as a guide for setting and managing encounter levels.
7. In some areas, such as at Bell Rock, provide more intense management than may be generally consistent with ROS objectives.
8. Limit road maintenance and road improvement activities in order to conserve Semi-primitive Motorized ROS characteristics. Provide road maintenance consistent with MA emphasis/ROS objectives. (Refer to Appendix C - Road Maintenance Objectives)
9. Develop a ``host'' program at designated camping locations to reduce resource impacts, encourage proper camping etiquette and provide information to National Forest visitors.

10. Discourage large group events in the Sedona/Oak Creek Ecosystem except in suitable developed places, such as Crescent Moon Ranch Recreation Site or in the Savannah MA.

11. Discourage proliferation of unneeded trails by:

    - providing well-defined trails that encourage people to stay on designated routes;
    - designing trails that provide a reasonable degree of access; and
    - installing trail markers and defining trail edges;
    - providing orientation maps;
    - obliterating social trails that duplicate system trails or cause damage, such as erosion or plant loss.

12. National Forest management activities should demonstrate the concepts of reduce, reuse, recycle and reclaim to National Forest visitors.

13. Recreation developments should incorporate universal design features to the extent possible, given the terrain and the overall level of development.

14. Implement and use the ``meaningful measures'' system to develop quality standards for recreation facilities and user satisfaction.

Commercial Uses

Goals

1. Commercial activities occur during times and in locations consistent with the needs of National Forest users and area residents. Commercial activities are consistent with Sedona/Oak Creek Ecosystem goals.

2. Commercial tours are consistent with each management area's emphasis, ROS objectives and community goals.

3. Permitted commercial tour businesses are capable and willing to invest in the stewardship of natural resources and the infrastructure of the National Forest within which they operate. Permitted commercial tours participate in resource protection and monitoring.

4. Commercial tours support the Forest Service mission by providing high-quality outdoor recreational, educational and interpretive opportunities consistent with Sedona/Oak Creek Ecosystem goals.

5. Commercial uses are conducted in a way that sustains long-term soil productivity, properly functioning ecosystems and riparian functions.

Objectives

1. Provide a commercial guide training program. Training should focus on National Forest goals and regulations, Leave-No-Trace etiquette and natural and cultural history. Training should occur annually or when new guides are hired. Collaborate with guides to develop and implement the training program.

2. Eliminate as soon as feasible existing permitted commercial aircraft landings on the National Forest.

3. Evaluate new applications for commercial tours based on the willingness and ability of the applicant/permittee to meet the vision and goals of the Forest Plan. This review will consider overall recreation use rather than focusing on commercial tours only.

4. Adjust the use of commercial tours as a solution to traffic and resource impacts.

5. Permitted commercial tours invest in such infrastructure as roads, trails, scenic turnouts and signs in areas where they operate.

Standards

1. Prohibit helicopter landings and takeoffs on National Forest lands except for emergencies and rare maintenance support activities.

2. Limit new commercial tours to activities that have significant demand, promote transportation services or public safety, or substantially increase protection of cultural or natural resources.

3. Any new commercial tour services will be solicited by the Forest Service and a prospectus process will be used to select new operators. Unsolicited proposals will generally be rejected.

4. Limit travel associated with commercial uses to system roads and trails, or to sites designated in an operating plan for such use.

5. Require Forest Service-approved training for permitted commercial guides and their employees on such topics as cultural and natural history, site etiquette and Forest Service missions and goals for the Sedona/Oak Creek Ecosystem.

6. Delegate approval authority for Statewide commercial tours for the Sedona/Oak Creek Ecosystem to the Sedona Ranger District. This will ensure compatibility with Forest Plan direction and appropriateness of the activity for the sensitive Sedona/Oak Creek Ecosystem.

7. Removal of commercial National Forest products is by permit at designated locations only.

Guidelines

1. Apply guidelines for commercial filming that protect National Forest resources and recreational uses and benefits. Discourage commercial filming using aircraft in all management areas except the Savannah MA and limited places in the Gateway MA.

2. Review and adjust existing commercial tours to meet Forest Plan direction, ROS objectives and community goals and to address residential concerns.

3. Commercial tour activities must not allow livestock to access unsuitable range.

4. Encourage commercial tours to use private land for their activities when their proposed use is not consistent with National Forest goals and can be accommodated on private land.

Interpretation and Communication

Goals

1. Forest Service communication and interpretive messages show respect for the diverse backgrounds and needs of visitors. The Forest Service communicates accurately and honestly and conveys a land ethic to visitors.

2. National Forest visitor information achieves orientation, safety, educational and resource protection goals as well

as recovery of threatened and endangered species. Visitors and residents:

- know where to get information about National Forest opportunities and regulations;
- learn about the cultural and natural features of the Sedona/Oak Creek Ecosystem;
- understand the role of fire, know how to minimize risk and accept some temporary changes in air quality to accommodate prescribed fire activities;
- consider potential impacts when choosing recreation activities and know how to minimize their impacts;
- understand the legal and ethical limitations on their activities and the reasons for these restrictions;
- know about the unique and sensitive resources in the Sedona/Oak Creek Ecosystem and are stewards of these resources; and
- are aware of when they are entering or leaving the National Forest.
-

Objectives

1. Collaborate with the community, local governments, agencies, and service and volunteer organizations, including the Chamber of Commerce, National Park Service and Arizona State Parks, to develop and implement an effective visitor information plan.
2. Coordinate National Forest information disseminated through other sources, such as chambers of commerce, resorts, concessionaire fee booths, State parks, national monuments and museums, into a consistent and accurate message that promotes stewardship.
3. Develop visitor welcome centers in cooperation with the community, other agencies, and private partners.
4. Provide interpretive information at trailheads and designated camping and parking areas explaining heritage and Wilderness philosophy and etiquette.
5. Provide information for OHV tourists and trail users, including maps and signs that provide road and trail information and explain National Forest regulation for such activities as OHV travel and camping and trail opportunities.
6. Implement the Sedona Ranger District Interpretive Strategy.
7. Provide interpretation and information for the local community and National Forest users regarding wildfire. Make efforts to educate homeowners and builders about risk-reduction practices.

8. Provide orientation information and interpretation at sites that receive high levels of visitation.

Guidelines

1. At Wilderness access points, provide directional guidance and information on minimum impact and archaeological site etiquette.
2. Use a consistent design style for interpretive and information signs and kiosks, allowing for individual site distinctiveness.
3. Information should direct visitors to places that can sustain visitor use.
4. Information about the location of sensitive, cultural and biological sites is not provided to visitors.
5. **At selected popular destination sites provide interpretation to encourage visitors to protect the natural surroundings and to respect the introspective and contemplative experiences of others.**

It is hard to be pessimistic about the West. This is the native home of hope...cooperation not rugged individualism is the pattern that preserves it.

~Wallace Stegner

ADDITIONAL MANAGEMENT DIRECTION BY MANAGEMENT AREA

This chapter contains the more specific direction that applies to each unique management area. Information in this chapter augments the information found in previous chapters and in the Coconino National Forest Land and Resource Management Plan. This chapter includes a description of each management area and the management emphasis. This is followed by the goals, objectives, standards and guidelines that apply.

Dry Creek Basin (MA 21) – 5,508 acres

Premier hiking trails crisscross this expanse of rolling hills, piñon-juniper forest and astonishing redrock vistas around Dry Creek. This MA is celebrated for Long Canyon and Vultee Arch - from which one can enter the Red Rock-Secret Mountain Wilderness - and for the area west of Dry Creek to Doe Mountain and Boynton Pass Road.

Management Emphasis

Opportunities abound for outstanding trail-oriented day use within a Non-motorized, Semi-primitive ROS setting.

High-profile visitor orientation and interpretation tells people about the recreation opportunities in Dry Creek Basin, the adjacent Red Rock-Secret Mountain Wilderness and points west.

Plants, Wildlife, Soil, Air and Water

Guidelines

1. Eliminate vehicle crossings of Dry Creek unless appropriate water quality protection measures can be used.

2. Protect sensitive plant populations by placing trails and trailheads out of sight of sensitive plants, such as Verde Valley sage and Delmaters agave.

Scenery

Objectives

1. People experience a predominantly natural appearing and sounding environment away from the main travel-ways.

Prehistoric and Historic Archaeology

Objectives

1. Focus archaeological surveys on Long Canyon, Boynton Pass, the Cockscomb and Doe Mountain.

2. Renovate Van Deren Cabin to its historic condition. Protect and operate it as a ``living museum'' to reflect ranching history and to function as a cultural interpretive site. Provide sanitation facilities, interpretation and access consistent with Semi-primitive ROS objectives.

Community

Objectives

1. Acquire properties whose development could detract from scenic and Wilderness values or impact historical/cultural values, such as Tucker property, Tree Farm and Cockscomb.

2. If acquisition is not possible and development occurs, establish partnerships with owners/developers of isolated parcels, such as Enchantment, Seven Canyons, Cockscomb and Tree Farm, to reduce and control the impacts of private development on surrounding National Forest land.

Recreation

Objectives

1. Achieve, in general, a Semi-primitive Non-motorized ROS setting away from roads and Semi-primitive Motorized along Dry Creek Road. Recognize ROS setting inconsistencies expected along Dry Creek Road, at or within half a mile of trailheads, where encounters with other people are expected to be high and in the areas near private lands, such as Cockscomb/Tree Farm/Long Canyon.

2. Maintain the Dry Creek Road (FR152) in a rough condition that keeps the challenging and narrow character of the roadway but allows access by the careful driver in a standard low clearance vehicle. Emphasize trail access, picnicking and scenic viewing along the Dry Creek Road.

3. Design a campground that provides:

   - a Semi-primitive camping experience for tent campers with emphasis on a quiet, natural, rustic, uncrowded setting;
   - a jump-off point to the Wilderness;
   - staging site for day hikes;
   - camping and trail access for equestrians; and
   - up to 60 campsites.

4. Emphasize non-guided, day-use recreational activities, featuring high-quality hiking, mountain biking, equestrian use, scenic viewing, contemplation and opportunities to experience nature and solitude.

5. Expand non-motorized trail opportunities outside of Wilderness that provide a variety of challenge levels with emphasis on moderate to difficult access levels as defined in ROS accessibility guidelines.

6. Establish a ``hub'' trailhead to:

   - accommodate a variety of trail users;
   - centralize access away from sensitive areas; and
   - provide a trail link with popular trailheads on Dry Creek Road where parking cannot be expanded such as Devil's Bridge, Brins Mesa, Secret Canyon and Vultee Arch.

7. Rehabilitate areas that have been damaged by dispersed camping and parking. Give priority to Dry Creek, Fay Canyon South, Dry Creek Road, Long Canyon and Van Deren Cabin.

Standards

1. Prohibit camping and recreation fires except in designated areas.

Commercial Uses

Objectives

1. Develop partnerships with commercial tour operators to maintain the Dry Creek Road and to renovate and protect Van Deren Cabin.

Guidelines

1. Limit permitted commercial tours to system roads and trails, with most use occurring at Van Deren Cabin and on Dry Creek Road and arterial roadways.

Interpretation and Communication

Objectives

1. Develop a ``gateway'' information facility to orient and inform visitors about the recreation opportunities and regulations for the Dry Creek Basin, Savannah and Red Cliff MAs. Evaluate this facility to determine if it can be consolidated with the area's trailhead ``hub.''

Gateway – Management Area 22 – 2,347 acres

The Gateways - on State Highways 179 and 89 - are where millions of visitors experience their first exhilarating views of the redrock country and start to wonder where they can find accurate information to guide them. These highways are the gateways to the Sedona/Oak Creek Ecosystem.

Management Emphasis

Visitors are welcomed and oriented to the area.

A sense of arrival at a special place that encourages stewardship is conveyed.

People entering or leaving the redrock landscape enjoy an outstanding scenic corridor.

Scenery

Objectives

1. Provide a high-quality experience for visitors enhanced by unaltered vistas of the distant redrock cliffs.

Standards

1. Coordinate with the Arizona Department of Transportation, local governments and private land owners to encourage protection of the scenic quality along entry highways.

Guidelines

1. Maintain scenic parkway characteristics. Consider scale and alignment in the design of roadway improvements. Also consider roadway features such as signs, guardrails and landscaping, that contribute to the desired scenic character.

2. Roadside facilities are designed and placed to provide safe scenic viewing and photo opportunities. They blend with and complement the surrounding landscape. Strategically locate and consolidate parking and access areas to minimize disturbance and visual clutter associated with signing, parking areas and trailheads.

Community

Standards

1. Base-for-exchange at The Dells (up to 800 acres) is intended to allow for acquisition of high-priority private parcels only.

Guidelines

1. Exchange proposals will consider methods such as development agreements, joint planning authority and master planning to mitigate impacts on the National Forest and the community.

Recreation

Objectives

1. Manage generally for a Roaded Natural ROS setting. Recognize the inconsistencies of the future development of State highways 179 and 89A south of Sedona to make them both four-lane highways within five years and manage for a Rural ROS setting classification immediately adjacent to the roadway.

2. Facilitate alternative forms of transportation, such as shuttle buses and bicycle paths.

3. At Woods Canyon Trailhead:

   - improve signing and parking for Wilderness access;
   - discourage casual Wilderness use resulting from roadside parking along the highway;
   - eliminate vehicle access across Jacks Creek; and
   - restore damaged sites using erosion control and revegetation.

4. Work with the Arizona Department of Transportation to determine safe pullout/facility locations along State highways. Combine these pullouts with opportunities for scenic viewing, trail access, interpretation, transit stops and other National Forest access.

5. Locate and design welcome centers to enhance community values and provide National Forest visitor parking and orientation. Work toward private/public partnerships to accomplish this objective, possibly on National Forest lands under appropriate authorization.

Standards

1. Prohibit camping and recreation fires.

Commercial Uses

Objective

1. Management of the suitable timber lands is guided by the direction for the Sedona/Oak Creek area, with additional detail from MA 3 as appropriate.

Standards

1. Prohibit commercial tours, except on State Highways 179 and 89A.

Interpretation and Communication

Objectives

1. Provide general area information, especially about roads, trails, camping, community services, points of interest and sensitive features of the Sedona/Oak Creek Ecosystem. Visitor information developments should offer a ``self-service'' format with little on-site assistance needed. However, on-site hosts are encouraged. Do not limit the information to the National Forest only, but consider and provide the broad range of information visitors require. Seek partnerships to provide this information.

2. Visitors are welcomed and oriented to the Sedona/Oak Creek Ecosystem and are directed to locations that are best suited to the type of activity they are seeking.

3. Interpret Lime Kiln and Chavez Wagon roads and Stage Stop.

Lower Oak Creek (MA 23) – 754 acres

This portion of Oak Creek is a five-mile stream corridor that extends from Lower Red Rock Loop Road to Hidden Valley southwest of Sedona. This MA is characterized by steep canyon slopes, clear water and an uncrowded, quiet environment. Along the north side of the Creek are private developments and homes, while the south side has no developments or roads. Here, one can escape crowds and enjoy a quiet natural setting.

Management Emphasis

Opportunities for non-motorized, uncrowded, dispersed recreation are common.

Wildlife habitat, water quality and a healthy stream environment are protected.

Opportunities are provided for solitude and isolation from sights and sounds of human activity across a range of settings from streamside to canyon to mesa top.

Plants, Wildlife, Soil, Air and Water

Objectives

1. Collaborate with the AG&FD and the USFWS to reintroduce the round-tailed chub into Lower Oak Creek if, after a review of the potential habitats, methods and economics, it is a viable project.

2. A native fish community exists and functions naturally within the lower reaches of Oak Creek. There is an appropriate range of spawning, rearing and overwintering habitat to support native fish. Increase angler awareness of and demand for native fish.

3. Research is conducted to further define the habitat requirements of the native fish community and to identify actions to protect and/or restore habitat conditions and increase native fish populations.

Scenery

Objectives

1. Retain elements of prehistoric agricultural landscapes and historic ranching.

Prehistoric and Historic Archaeology

Objectives

1. Survey and record the Lime Kiln Road and the old county highway that linked Clarkdale to Sedona during settlement days. Evaluate these routes as non-motorized additions to the National Forest trail system.

Recreation

Objectives

1. Though close to the City of Sedona and Page Springs, this MA is still relatively undeveloped and should be managed for a Semi-primitive Motorized ROS setting on the northside of Oak Creek. Manage the south side of the creek for a Semi-primitive Non-motorized ROS setting. The expected number of encounters on the north side reflects the level of private development and the road use from visitors accessing Oak Creek. The south side is non-roaded and the expected encounter level is measured in encounters per day rather than per hour.

2. Provide a network of trails linked to other trail systems and designed for non-motorized use such as biking, equestrian activity and hiking.

3. Add commercial use trails in the Kachina area to the Redrock Trail System where appropriate. Close and rehabilitate unneeded trails and roads in the Kachina area. Continue partnerships with equestrian commercial tours and volunteer groups to maintain these trails.

4. Provide angling opportunities at remote sites and in a natural landscape.

5. Expand opportunities for wildlife viewing.

6. Implement such measures as vehicle barriers to restrict vehicles from driving in Oak Creek. Maintain National Forest road access to Elmersville.

7. Provide for dispersed camping that is consistent with protection of riparian values.

Interpretation and Communication

Guidelines

1. Interpret the Molina Homestead.

Neighborwoods (MA 24) – 15,151 acres

This management area is ``Sedona's Backyard.'' It is next to many residential areas, urbanized sections of Sedona and the Village of Oak Creek, sections of State Highways 170 and 89A and a several-mile stretch of Oak Creek south of Sedona. The boundaries of Red Rock-Secret Mountain Wilderness from Capitol Butte to Steamboat Rock are the area's northern perimeter. This area is heavily used by visitors and residents, who cherish the natural landscape so close to Sedona and frequently use the honeycomb of trails.

Management Emphasis

Strong community partnerships for stewardship of ``Sedona's backyard'' support resident health, safety and quality of life.

Relatively quiet, easily accessed National Forest supports wildlife, scenic viewing and experiencing nature.

Community

Objectives

1. Collaborate with the AG&FD to educate residents about urban wildlife, such as deer, snakes, raccoon, skunk, coyotes and javelina.

2. Provide information about introduced noxious plants and the problems they can create for the native Ecosystem.

3. Fire management activities are intense and focus on protection of life and property. These activities include:

   - identifying places of high fuel buildup and potential wildfire problems in the wildland/urban nterface;
   - providing interpretation and information to residents and National Forest users regarding wildfire;
   - educating homeowners and builders on risk-reducing practices; and
   - updating the Fire Prevention Strategy to address the risk and hazard in the urban interface.

Guidelines

1. Base-for-exchange at Chapel of the Holy Cross is intended for church acquisition only; base-for-exchange at VOC Golf Course is intended for golf course acquisition; base-for-exchange at Brewer Road Ranger Station is intended to facilitate a new ranger station and/or welcome center location.

2. Encourage local governments to ensure appropriate trail access on private lands through the private land development process. Use the Redrock Trails Plan and the Sedona Urban Trails and Pathways Plan as guides for future trail planning efforts. (Refer to Map 6 - Redrock Trails Plan)

3. Manage access at neighborhood National Forest trailheads to discourage visitor parking along residential streets and to encourage alternative forms of transportation.

Recreation

Objectives

1. Due to the level of adjacent development and the ease of access, manage generally for Rural or Roaded Natural ROS settings, except where there are remnant pockets of Semiprimitive ROS settings such as in the Soldier Pass area. Soldier Pass should be managed as Semi-primitive Motorized. This location is less accessible and more primitive than most of the MA. Maintain the rough and primitive condition of the four-wheel-drive road in this area.

2. A system of trails and pathways surrounds the City of Sedona and the Village of Oak Creek and provides trail recreation opportunities and a means of non-motorized travel off busy streets. Design trails and trailheads to:

   - direct visitors through residential areas and onto National Forest lands in an efficient manner with minimal inconvenience for residents and visitors;
   - provide convenient trail access for residents and visitors;
   - prevent damage to vegetation and soils;
   - encourage residents to use designated trails, neighborhood links and trailheads and discourage user-created paths.

3. Expand partnerships with neighborhoods to promote trail and resource stewardship and to obtain assistance in trail maintenance and planned trail construction.

4. Collaborate with the AG&FD, The Yavapai and Coconino County Sheriff's and City of Sedona Police Department , to develop special hunting and shooting regulations.

5. Restore damaged sites, with priority given to Sedona North Urban Interface, Airport Saddle, Soldier Pass, Jordan Road, Broken Arrow, Upper and Lower Red Rock Loop Roads, the Sedona Gun Range and Chavez Crossing.

6. Work toward private/public partnerships that provide National Forest visitor access and orientation facilities, especially trailheads and parking. These facilities might be located on National Forest lands under appropriate authorization.

7. Address local neighborhood concerns about the impacts of visitor use on residential quality of life. Use such methods as night-time closures, improving signs and limiting motorized access and the number of visitors.

Standards

1. Camping and recreation fires are prohibited except in designated sites at Chavez Group Campground.

Commercial Uses

Objectives

1. Modify commercial activities as needed to address resident concerns for safety and to minimize disturbance from commercial activities that access National Forest lands through neighborhoods.

Guidelines

1. Work with commercial tours, filming groups and homeowners to resolve user and neighborhood safety and quality of life conflicts such as concerns about noise, safety and facilities maintenance needs.

Interpretation and Communication

Objectives

1. Work with partners in the community to encourage residents' stewardship of National Forest resources. Volunteer partnerships have high resident participation and provide opportunities for exciting stewardship with a strong learning component.

2. Collaborate with Red Rock State Park as a partner in environmental education and stewardship.

Red Cliff (MA 25) – 3,979 acres

This narrow MA follows the stately red cliffs between Boynton Canyon and Nichol's Well near Casner Mountain and includes such canyons as Boynton, Red, Hartwell and Fay. The Red Rock-Secret Mountain Wilderness forms the MA's northern border, while its southern border generally follows Boynton Pass Road. The Red Cliff MA is becoming increasingly popular for trail hiking, scenic drives, archaeological site exploration and accessing Wilderness beyond.

Management Emphasis

American Indian Tribes and the Forest Service are partners in management of cultural sites. Cultural resources are preserved and interpreted for the enjoyment of all visitors.

Day-use activities emphasize discovery, learning and scenic viewing.

Wilderness access and information are provided.

Scenery

Guidelines

1. Facilities that provide access to the cliffs or occur near the cliffs should remain visually subordinate to cliffs and to the surrounding landscape.

2. Maintain or enhance views of the cliffs from the travel corridors through various means such as:

   - acquisition of intervening private properties with emphasis on undeveloped parcels;
   - limiting the use of intervening areas for parking, camping and/or utilities; and
   - limiting motor vehicle traffic between access corridors and the cliffs.

Prehistoric and Historic Archaeology

Objectives

1. Develop management strategies for Honanki and Palatki, addressing all facets of visitor use. Management strategies should identify the amount and type of visitation that is consistent with maintaining a high-quality experience and site integrity.

2. Participate in partnerships with American Indians, including but not limited to development strategies for management, stabilization, interpretation, collection of ethnographic information and involvement with resorts and Wilderness programs.

3. Provide cultural interpretation at Palatki, Honanki and Boynton Canyon.

4. Collaborate with the Nature Conservancy and Archaeological Conservancy to protect cultural and biological resources in the vicinity of Hartwell Canyon.

5. Document cliff dwellings and rock art sites.

6. Inventory cultural areas of distinctive prehistoric and historic features (e.g., orchards) and recognize their natural and interpretive potential.

Standards

1. Prohibit dogs at developed interpretive sites in Honanki and Palatki and in Boynton Canyon.

Community

Objectives

1. Acquire primarily undeveloped private parcels, particularly the Hancock Ranch, Woo Ranch and Lincoln Canyon properties.

2. If acquisition cannot occur, collaborate with private land owners and county governments in the land development process to protect unique resources such as scenery, adjacent Wilderness, archaeological values and threat ened and endangered species habitat.

Recreation

Objectives

1. Management should be consistent with a Semi-primitive Motorized ROS setting in the part of the Management Area west of Red Canyon, allowing for specific ROS setting inconsistencies, such as cultural interpretive sites like Palatki, the influence of the main road (FR152c) and access to private lands. Although the ROS objectives at Palatki and Honanki are the same as those of the surrounding MA, the maximum desired number of encounters is three to four groups per hour because of the lower capacity of these sites to handle visitation without damage to cultural values.

2. Provide adequate trailhead facilities for hikers and equestrians to serve Loy Canyon and Mooney Trails and to serve hikers at Boynton Canyon and Bear Mountain trails. Expand loop trails, such as Mooney and Loy Canyon. Work to provide more parking, avoid impacts on archaeological sites and reduce private land conflicts at the Loy Canyon trailhead and trail.

3. Restore damaged sites, with priority given to Boynton Canyon, Honanki, Fay Canyon Trailhead, Loy Canyon and Palatki.

Standards

1. Prohibit camping and recreation fires.

Guidelines

1. Maintain roads in the lowest standard possible consistent with safety and the desired primitive recreation experience.

2. Discourage the construction of additional trails to limit access to unprotected cultural sites.

Commercial Uses

Objectives

1. Expand partnerships with commercial tours to protect, enhance, restore and monitor Honanki in compliance with Section 106 of the Historic Preservation Act and to provide accurate interpretation and site etiquette for visitors.

Standards

1. Limit commercial tours at Honanki consistent with site protection and visitor experience objectives.

Interpretation and Communication

Objectives

1. Expand the level of personal contact between interpreters and visitors at cultural interpretive sites. Provide a high level of interpretation and one-on-one contact to accomplish the following:

   - opportunities for interactive learning through protection, documentation and restoration projects at archaeological sites;
   - appropriate access to site etiquette information;
   - appreciation of archaeological conservation, native cultures and history; and
   - visitor education about archaeology and historic resources that fully protects those resources.

2. Provide full-time hosts at Honanki, Palatki, Boynton Canyon and other significant cultural interpretive sites.

Redrock Frontcountry (MA 26) - 5,346 acres

This MA features many of the memorable vistas that draw millions of visitors annually: dramatic red rock cliffs that startle the eye, such as Cathedral Rock, and such popular destinations as Bell Rock Pathway, Broken Arrow, Schnebly Hill and Back O'Beyond. This MA is conveniently accessed from main paved roads.

Management Emphasis-

There is a strong emphasis on visitor orientation and information.

Nature-based day-use recreation activities occur, including easily accessed trail opportunities and scenic viewing.

The area meets initial needs of visitors for up-close views and orientation while managing crowds to protect the environment.

Plants, Wildlife, Soil, Air and Water

Objectives

1. Close to motor vehicles and rehabilitate locations that have been damaged by off-road driving and camping with priority given to Broken Arrow, Schnebly Hill, Cathedral Rock and Carrol Canyon.

Scenery

Objectives

1. Facilities that provide access to or occur near the cliffs remain visually subordinate to the cliffs and to the surrounding landscape. Maintain or enhance views of the cliffs from the travel corridors through various means such as:

   - limiting the use of intervening areas for parking, camping and/or utilities; and
   - limiting motor vehicle traffic between access corridors and the cliffs.

Community

Objectives

1. Develop transportation improvements such as scenic turnouts to provide orientation and information for visitors and to provide first impressions from the highways of the redrock landscape. Encourage use of alternative transportation such as shuttles and other high-occupancy vehicles.

2. Fire management activities are intense and focus on protection of life and property.

Recreation

Objectives

1. Recreation management is consistent with a variety of ROS settings, including:

   - Semi-primitive Non-motorized between Submarine Rock and the Wilderness boundary;
   - Semi-primitive Motorized for the remainder of the Devil's Dining Room/Broken Arrow area;
   - Semi-primitive Motorized with Roaded Natural inconsistencies (size too small and adjacent to Urban or Rural developments) for Scheurman Mountain, Carrol Canyon and the Cathedral Rock area; and
   - Roaded Natural for the remainder of this MA. (Refer to Map 3 - Recreation Opportunity Spectrum Objectives)

2. In areas away from parking, roadway and staging sites, manage Schnebly Hill for Semi-primitive characteristics with no motorized access, while recognizing the ROS inconsistencies in existing social encounters and road access. Maintain the Semi-primitive character of Schnebly Hill Road with an unpaved surface to promote slow to moderate vehicle speeds and the desired recreation character. Retain minimum standards for Schnebly Hill road width, horizontal and vertical alignment, vegetation clearing, ditch definition and surfacing. Discourage improvements to Schnebly Hill Road as an alternative commuter route between I-17 and Sedona. The character of development and use should remain low-key, unhurried and rustic; auto traffic speed should be consistent with this character.

3. Manage Broken Arrow Basin, away from the parking and staging area, for Semi-primitive Motorized ROS settings while recognizing the inconsistencies in social encounters that can be expected. Manage parking and staging areas at Broken Arrow Basin for Roaded Natural ROS settings because of the area's high level of use. The level of use on the main four-wheel-drive road is higher than generally desired for SPM areas, but the physical setting and maintenance level of the road should be managed as SPM.

4. Encourage a variety of primarily self-directed, day-use activities emphasizing hiking, scenic viewing and learning about the natural and cultural history of the Sedona/Oak Creek Ecosystem.

5. Collaborate with the AG&FD, The Yavapai and Coconino County Sheriff's and City of Sedona Police Department, to develop special hunting and shooting regulations.

6. Facilities should serve large numbers of people at main vista/trail access points while conserving the natural environment and providing views of outstanding scenery in an atmosphere where the natural environment prevails and opportunities exist for quiet and contemplation.

7. A network of primarily non-motorized trails provides diverse opportunities for hikers, OHV recreationists, mountain bikers and equestrians while helping protect fragile natural resources and community relationships. Expand opportunities for loop hikes that provide access to the landscape and opportunities for scenic viewing. Expand access to overlooks and trails for persons with disabilities. Provide trail links to uptown Sedona, consistent with the Redrock Trail System as identified in this Amendment and with the City of Sedona Trails and Urban Pathways Plan. (Refer to Map 6 - Redrock Trails System)

8. On Schnebly Hill Road, develop a trailhead to serve the Margs Draw, Old Munds, and Huckaby trails and develop Schnebly Hill Vista as a viewpoint, interpretive site and possibly a trailhead.

9. Map the Old Munds Trail and evaluate the possibility of adding it to the Redrock Trail System as a non-motorized trail.

10. Provide opportunities for motorists to stop along main roads to view the spectacular scenery and experience the redrock country. Orientation, information and interpretation opportunities should be available for visitors on State Routes 179 and 89A and at popular trailheads.

11. At Bell Rock, take special actions so that visitors will have an awareness of, and sensitivity to, the Munds Mountain Wilderness.

Standards

1. Camping and recreation fires are prohibited.

Guidelines

1. Discourage direct Wilderness access from State Highway 179. Limit this access to sites at Bell Rock and the Little Horse, Bell Rock Pathway and Woods Canyon trailheads.

2. In many locations, site management should be intensive to accommodate very high levels of visitation, protect plants and soil and minimize user conflicts.

Commercial Uses

Objectives

1. Develop partnerships with commercial tours for maintaining the Schnebly Hill Road and other roads and adjacent facilities used for commercial tour activities.

Guidelines

1. Focus commercial tour activities on the main roadway and vista areas and recreation facilities.

Interpretation and Communication

Objectives

1. Encourage the development of roving and guided interpretive activities in areas of high visitor use. Provide interpretation to enhance short-duration day-use experience with emphasis on natural history.

2. Manage the area as a gateway into the Sedona/Oak Creek Ecosystem, providing key visitor information.

3. Provide outstanding interpretive opportunities to increase understanding of and appreciation for the Sedona/Oak Creek Ecosystem with emphasis on geology and natural history.

Savannah (MA 27) – 39,203 acres

This MA, with its open grassland punctuated by groves of trees and shrubs, is prime habitat for antelope. Views are of the redrock cliffs to the east and the Verde Valley to the south and west. The northern boundary swings around the base of Casner Mountain and the red cliffs to the north, to south of Boynton Pass Road and over to House Mountain

Management Emphasis

Ecosystem processes such as fire and flood play a natural role.

High-quality grassland supports a diversity of wildlife.

Low-density human uses occur, including scenic viewing, OHV touring, hunting, wildlife viewing and firewood cutting.

A wide variety of Semi-primitive motorized and non-motorized trail uses are provided.

Plants, Wildlife, Soil, Air and Water

Objectives

1. Acquire certain private parcels to reduce habitat fragmentation and otherwise improve antelope and grassland species habitat.

2. This MA is characterized by an open vegetation structure. Use prescribed fire and other mechanical treatments to improve forage conditions for wildlife, particularly birds and antelope. Increase the area occupied by grasses and forbs while decreasing the area occupied by shrubs and trees in comparison to recent historic levels.

3. Where piñon/juniper woodland is maintained in a grassland condition, eliminate invading vegetation through mechanical and prescribed fire treatments as needed. Consult with AG&FD on the design of these treatments. (Refer to Map 7 - Prescribed Fire Project Areas)

4. Develop conditions that:

   - provide high-quality habitat for upland game birds and deer;
   - improve and expand antelope and grassland bird habitat through such means as fence, road, fire and human access management;
   - provide adequate cover/security for animal shelter and foraging; and
   - improve forage conditions for wildlife, particularly quail.

5. Identify and protect antelope fawning areas.

6. Work together with the AG&FD to develop hunting reguations for antelope below the Rim in Game Management Unit 6B to protect and enhance the antelope population there.

Guidelines

1. To minimize restriction of antelope movement, locate fences one eighth mile from roads if road right-of-way fencing is required. Remove fences that are no longer needed; use smooth-bottom wires and meet the wildlife standards as stated in FSH 2670 and 2240 for all existing or new fences.

2. Locate roads to maintain adequate cover for animal shelter and foraging between roads, especially in locations with high road densities.

3. Use commercial and personal use firewood sales and Christmas tree cutting areas to reduce encroachment of invasive tree species and maintain open grassland habitat for antelope.

4. Low-intensity fire is acceptable unless life and property are threatened. Low-intensity prescribed burns are desired.

Scenery

Objectives

1. There are few roads in the House Mountain area. Existing roads are primitive, with only native surfacing and no road prism development.

2. Visitors see a landscape characterized by uncluttered panoramic vistas of scenic features. Reduce miles of road where feasible and locate remaining roads so that, except for road junctions, the sight of other roads is rare to the traveler.

3. Facilities such as roads and powerlines exist but are not prevalent and are subordinate to the natural landscape features, especially when seen from a distance greater than a half mile. Minimize evidence of ``administrative presence'' to a level consistent with a Semi-primitive ROS setting.

Prehistoric and Historic Archaeology

Objectives

1. Survey promontories and major tributaries, including Coffee Creek.

Community

Objectives

1. Acquire large blocks of undeveloped private property to improve antelope habitat and to prevent impacts on National Forest lands from residential and associated infrastructure development. Acquire the Bradshaw Ranch property.

2. Collaborate with Yavapai County and private property owners for appropriate development of the Gray Ranch area that will minimize impacts on National Forest lands.

3. Base-for-exchange at The Dells (up to 800 acres) is intended to allow for acquisition of high-priority private parcels only. Exchange proposals will consider methods such as development agreements, joint planning authority and master planning to mitigate impacts on the National Forest and the community.

Recreation

Objectives

1. The Savannah MA is relatively remote and should generally be managed for a Semi-primitive Motorized ROS setting. Retain the benefits of quiet and low human impact in the northwest portion of House Mountain by managing this unroaded area as Semi-primitive Non-motorized. Facilities are few and the character of development is rustic and primitive.

2. Opportunities to experience a natural, uncrowded environment prevail, including opportunities to experience solitude and natural quiet.

3. Expand opportunities for viewing wildlife. Enhance outstanding bird-watching opportunities through riparian protection measures at Stage Stop.

4. Establish a hub trailhead in the Black Tank area to serve equestrians and provide access to Sycamore Canyon, Casner Mountain, Mooney Mountain and Loy Canyon. Establish a trailhead to serve recreationists who use the Lime Kiln Trail.

5. Create a network of roads and trails to serve OHV, mountain bike and equestrian use. Provide loops and connections with trails outside the area. Expand spring and fall trail recreation opportunities using existing roadways as much as feasible.

6. Complete the connection trail from Turkey Creek to House Mountain.

7. Provide recreation opportunities associated with personal firewood gathering and mineral collection consistent with management area goals.

8. Provide opportunities for dispersed camping and hunting.

9. Record and map the Lime Kiln Trail and evaluate the entire portion from Dead Horse State Park to Sedona as an addition to the Forest Service Trail System, State Trail System and the National Historic Trail System. Map and record the Chavez Stage Road and evaluate the possibility of adding it to the Forest Trail System and the National Historic Trail System. Coordinate this effort with adjacent trail sections from Chavez Pass to Jerome.

10. Provide a system of OHV recreation routes through the area that offer scenic and wildlife viewing, moderately rugged road conditions and dispersed camping. Provide route markers, road signs and maps as needed to guide people along the routes.

Guidelines

1. Road and trail locations must consider antelope protection goals. Recreation goals are subordinate to antelope protection.

2. Use only native surfacing and do not use road prism development for lateral roads (off of main access roads) unless increased use and development of private property require improvement for resource protection.

Commercial Uses

Objectives

1. If the demand can be demonstrated, allow commercial tours to provide opportunities for scenic viewing, natural history education, wildlife viewing and other activities that are compatible with antelope protection and Savannah MA goals.

Guidelines

1. Livestock grazing and collection of minerals, firewood and native plants are consistent with other Sedona area-wide goals.

Interpretation and Communication

Objectives

1. Provide a minimum of orientation and interpretation consistent with the ROS setting. Information should emphasize visitor orientation, natural history and etiquette pertinent to visitor activities in the Savannah MA.

2. Provide information boards (kiosks) at main road junctions with pertinent OHV recreation information.

Schnebly Rim (MA 28) – 5,090 acres

This management area provides seasonal access to the redrocks from Schnebly Hill Road and critical winter habitat for elk and deer. This MA lies above the Mogollon Rim on Schnebly Hill and follows the Rim south to Committee Stock Pond, then on to Jacks Point, east along the rim of Woods Canyon, north to Fox Tank and then west back to Schnebly Hill Vista. This Semi-primitive ROS setting is rich in ponderosa pine and alligator juniper interspersed with Gambel oak and grasses. This mixture of woodland and grassland offers awesome vistas over the redrocks and superb opportunities for solitude, wildlife viewing and hunting.

Management Emphasis

Opportunities abound for solitude and contemplation with outstanding vistas.

Schnebly Hill Road serves as a seasonal gateway for visitors entering the redrock landscape from Interstate 17.

Seasonal, low to moderate levels of Semi-primitive recreation are offered, including camping, hunting, scenic viewing and opportunities for discovery and solitude.

Conserve wildlife habitat, especially winter range for deer, elk and turkey.

Plants, Wildlife, Soil, Air, and Water

Objectives

1. Protect key elk, peregrine falcon, turkey and deer winter habitat. Protect turkey roosts from recreational activities, especially dispersed camping and motor vehicle traffic.

2. Use prescribed fire to rejuvenate wildlife browse/forage areas.

3. Close access to Schnebly Hill Road during wet periods when heavy tread rutting could occur.

Scenery

Objectives

1. Restore the rock pit located west of Schnebly Hill Road so that the pit site blends in visually with the surrounding natural landscape.

2. Discourage use of lateral roads. While visitors are likely to see other visitors on the primary access road, they are unlikely to see other visitors on lateral roads.

Community

Objectives

1. Discourage improvements to Schnebly Hill Road as an alternate commuter route between Flagstaff and Sedona/

Village of Oak Creek in order to maintain a more primitive roadway and recreational experience.

Recreation

Objectives

1. Manage, in general, for a Semi-primitive Motorized ROS setting, with seasonal closure of the southern portion to motor vehicles, and a Semi-primitive Non-motorized ROS setting above the Rim and west of the road corridor, between the Wilderness and the road. Recognize the relatively high level of use and encounter levels along Schnebly Hill Road, but maintain the road character as appropriate for the Semi-primitive motorized ROS setting.

2. Visitor activities should be consistent with and benefit from a Semi-primitive ROS character that provides opportunities to experience quiet, solitude and a sense of exploration, hunting, hiking, equestrian use, camping, mountain biking and off-highway vehicle touring.

3. Develop an integrated road and trail system that provides non-motorized and motorized access to scenic Rim view points; allows for scenic and wildlife viewing opportunities, hunting and camping access; and expands mountain biking and equestrian opportunities. Use existing low standard roads to the extent possible for this system.

Guidelines

1. Limit recreation activities to locations and times that do not conflict with wildlife goals.

2. Restrict camping along Schnebly Hill Road if needed to protect wildlife or watershed values. Consider the use of designated camping areas accessed from the road and provided with sanitation.

Commercial Uses

Objective

1. Management of the suitable timber lands is guided by the direction for the Sedona/Oak Creek area, with additional detail from MA 3 as appropriate.

Interpretation and Communication

Objectives

1. Provide a minimum of interpretation, education and orientation. Generally limit this information to visitor orientation, natural history and etiquette.

2. Provide visitor information on FR153 near I-17.

Transition (MA 29) – 2,897acres

This MA includes parts of Woods Canyon, Jacks Canyon and the rugged ridge between the Red Rock-Secret Mountain Wilderness and Sycamore Wilderness. These places are adjacent to Wilderness where there are few or no developments and access is difficult. Although they are outside the Wilderness, they are recognized as locales of little human presence and minimal impact to the land. As such, these areas function as a transition into Wilderness beyond.

Management Emphasis

Ecosystem processes such as fire and flood play a natural role.

Recreation is Semi-primitive and low density with an emphasis on non-motorized trail use.

Plants, Wildlife, Soil, Air, and Water

Objectives

1. Fire has a natural role. Prescribed fire is used to improve wildlife habitat; decrease fuel to natural levels; promote grass, forbs and shrub growth in a natural mosaic; and rejuvenate wildlife browse/forage.

2. Provide winter wildlife and resident habitat primarily for elk but also for white-tailed deer, mule deer and turkey.

Scenery

Objectives

1. An unaltered, natural-appearing landscape predominates.

Recreation

Objectives

1. Manage for a Semi-primitive ROS setting. This should generally be non-motorized except along the Casner Powerline Road where motor vehicles are allowed and where trailhead access provides parking and orientation to the area.

2. Discourage heavy recreational use. Protect quiet, uncrowded characteristics.

3. Except for motor vehicle use along the Casner Powerline Road, management and public use is consistent with goals for Wilderness and provides a transitional experience. Provide opportunities for Primitive Non-motorized trail-oriented activities, including opportunities to enjoy the natural environment, quiet and to access Wilderness.

4. Emphasize foot, bike and horse trail use. De-emphasize motorized use due to the effects of noise on the opportunities for solitude and natural quiet and due to proximity to Wilderness.

5. Provide a trail connection to link Munds Canyon to the Mogollon Rim from Oak Creek.

6. Design trails to discourage bicycle access into adjacent Wilderness and to otherwise minimize impacts on the Wilderness.

7. Allow four-wheel-drive use along the Casner Powerline access road through a special use permit system consistent with ROS goals for the Transition MA and adjacent Wilderness MA, wildlife objectives and soil protection and where such use does not interfere with APS powerline access needs.

Standards

1. Camping and recreation fires are prohibited in Jacks Canyon Transition MA due to the proximity to Neighborwoods. Due to limited space, four-wheel-drive groups are not allowed to camp along the Casner Powerline Road between the two gates.

2. Non-motorized ROS settings are the objective except for the Casner Powerline Road.

Commercial Uses

Objectives

1. Do not permit commercial tours on the Casner Powerline Road.

2. Continue to support Wilderness-dependent recreation opportunities, such as backpacking, horse packing and hunter guiding, where these activities are consistent with resource and WOS/ROS objectives.

Guidelines

1. Commercial tour activities should be limited to trails or sites designated for such use.

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Flagstaff/Lake Mary Ecosystem Analysis (FLEA) Area-Wide Goals, Objectives, Standards, and Guidelines

Introduction

The Goals, Objectives, Standards, and Guidelines in this chapter are additions to the Forest Plan and apply to the FLEA area only. Design of future projects will be based on four sources: 1) the current forest-wide direction, 2) the current management areas primarily based on vegetation and slope, 3) FLEA area-wide direction and 4) the new or updated FLEA Management Area direction. The management direction from the initial management areas that were identified primarily by cover type and slope, such as MA 3, 4, 5, 8, or 9, still applies to lands within the new place-based management areas of FLEA, such as Lake Mary Watershed or Doney. So if one is searching for management direction for a piece of land that is covered with ponderosa pine less than 40 percent slope and is located east of the Waterline Road, there would be direction from MA 3 and then also additional direction from the place-based Shultz MA; both locations would have information about desired conditions. If there is a conflict between management directions, the more place-based direction takes precedent. In the previous example that means the Shultz MA take precedent.

Goals are written as desired conditions in the present tense. Standards and guidelines are written in an active voice as direction.

Maps are located in Appendix M.

Zones

The Urban Influence Zone is located approximately ½ mile from the urban growth boundary as drawn in the *Flagstaff Regional Land Use and Transportation Plan* (RULTP).* The Rural Influence Zone is located approximately ½ mile from the rural growth boundary in the RLUTP, where it surrounds communities like Doney Park and Kachina Village. These zones are mapped as one area referred to as the Urban/Rural Influence Zone (U/RIZ). This zone provides a "fuzzy line" on the map that represents National Forest lands highly influenced by adjacent urban or rural residential communities. There are approximately 64,368 acres of National Forest Lands within the Urban/Rural Influence Zone.

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* *City of Flagstaff and Coconino County have been working on common planning direction for an area surrounding Flagstaff, that encompasses 524 square miles extending north to Sunset Crater, south to the communities of Kachina Village/Mountainaire, east to Winona, and west to Bellemont. It has been finalized for the county portions and was ratified by voters in May 2002 for the City of Flagstaff portions.*

Recreation Opportunity Setting (ROS)

Goals and Objectives

There is a range of recreational setting opportunities for people to enjoy the area's many scenic and aesthetic qualities.

The diversity and quality of recreation opportunities, settings, and experiences are within acceptable limits of change to ecosystem stability and condition.

Evidence of human activities and developments such as roads, trails, and facilities, is visually subordinate to the natural-appearing landscape.

Encourage cooperation among community, landowners, other land management agencies, and local governments to maintain trails, natural scenery, and healthy landscapes in the Urban/Rural Influence Zone.

Refer to the *Objectives for Recreation Opportunity Spectrum* map *for the FLEA Area* map (Appendix M) for the desired recreation opportunities and experiences.*

Guidelines

ROS objectives guide management.

Manage for social encounters, signing, scenery, and a sense of exploration that meets the ROS objectives.

Use ROS objectives to aid in determining appropriate types and numbers of individual, groups, outfitter/guides, and special uses.

Manage recreation use to stay within the capacity for ROS objectives with the exception of holiday weekend use levels that may temporarily on a short-term basis exceed capacity in some locations, such as the Cinder Hills OHV MA.

Management activities should generally comply with the requirements of the adopted ROS classes on the *Objectives for Recreation Opportunity Spectrum* map.†

Work towards a complete Scenery Management System (SMS) assessment.

Visitor Information Services

Goals and Objectives

Regulations are known and enforced. Visitors are properly informed about services, facilities, regulations, and environmental ethics such as "Leave No Trace."

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* *This includes an increase in opportunities for Semi-primitive Non-motorized and Semi-primitive Motorized ROS experiences to better manage the high demand for this type of recreation setting. (see Objectives for ROS map)*

† *For more discussion of ROS classifications please refer to* The Ideas for Change, *Appendix A.*

Agencies communicate and work together with local organizations to achieve goals. There is ongoing communication among community organizations, interest groups, and homeowner associations.

Through a variety of interpretive efforts, people learn about biodiversity, ecosystem function, fire ecology, and riparian communities and will be motivated to practice careful stewardship.

Recreation

Guidelines

Implement and use "meaningful measures" * to manage for dispersed recreation and user satisfaction.

Camping

Goals and Objectives

Dispersed campsites are maintained to protect forest resources and maintain visitor experience.

Impacts from dispersed camping do not result in unacceptable environmental impacts, interfere with day-use, or pose a threat to residents living next to National Forest lands.

Standards

Prohibit dispersed camping within 1 mile of developed campgrounds and developed day-use facilities.

The maximum camping stay limit is 14 consecutive days unless otherwise posted in a special order.

Guidelines

Implement the camping objectives outlined in the *Objectives for Camping* map. Emphasize daytime recreation activities in Urban/Rural Influence Zone. In portions of the FLEA area, change from general dispersed camping to designated dispersed camping only. Implement designated dispersed camping areas and any additional areas through subsequent site-specific analysis.

Inventory and monitor dispersed camping sites. This inventory will provide information about when sites should be closed and restored. The monitoring will provide information to help decide whether or not restored sites should be re-opened.

When designating dispersed camping, consider existing resource damage, closeness to riparian communities, degree of use, and ROS objectives. Campsites should be identified as candidates for closure, restoration, or relocation. Campsites that are identified to remain open will become designated campsites.

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* *Meaningful Measures (MM) is a process that connects management of the recreation program to our users, to Congress, and to agency decision makers through the establishment of National Quality Standards and the determination of the costs to meet those standards. MM is responsive to changes in funding, priorities, and visitor preferences.*

Techniques for managing designated dispersed campsites include but are not limited to the following concepts, depending on site location and level of use.

- In general, locate designated dispersed camping sites up to 300 feet off a forest road.
- Designated campsites are identifiable by a marker, such as a sign or post. Some sites may be hardened and access improved. Allow camping within 50 to 100 feet of the marker on a first-come first-serve basis and once the sites are full the user would have to go to another area to camp. Site-specific environmental analysis may yield a greater or lesser distance.
- To protect sensitive natural resources, harden or close high-use recreation sites and initiate additional camping and campfire restrictions, depending on monitoring.

Compile, map in GIS, and file in an electronic corporate database information obtained from inventory and monitoring of dispersed camping sites.

Inform and enforce State regulations for no camping within ¼ mile of open water.

Outfitter/Guides

Goals and Objectives

Commercial activities are consistent with management area emphasis and ROS objectives.

Commercial activities support Forest Service goals and provide high quality outdoor recreation, interpretation, and education activities that complement the Forest Service mission.

Special-use proposals are consistent with desired conditions. New applications for commercial use are approved based on the ability and willingness of the applicant to meet the goals of the *Forest Plan.*

Standards

Manage outfitter/guide use to stay within capacities that meet ROS objectives.

Award new outfitter/guide permits competitively by soliciting applications/proposals. In general, reject unsolicited proposals.

Make outfitter/guide permits available based on a suitable mix of guided and non-guided public capacity. This mix may vary by type of activity and/or season of use.

Guidelines

Determine outfitter/guide service capacity for the FLEA area.

Review and adjust existing commercial uses to meet *Forest Plan* direction and ROS objectives.

The table below shows objectives for the number of social encounters within each of the ROS settings for Forest Service permitted commercial tour operators only. These objectives should apply to commercial tours.

ROS Setting*	**Social Encounters (All users)**
Roaded Natural	No objective
Semi-primitive Motorized	15 per day
Semi-primitive Non-motorized	15 per day
Primitive	6 per day

Reduce the use-level coefficients shown in this table as necessary to reflect usable acres, patterns of use, and general attractiveness of the specific management area type as described in the ROS Users Guide.

Use-level allocations will range from no allocation within some Primitive and Semi-primitive Non-motorized ROS areas to relatively high use allocations within some Roaded Natural areas. Other more site-specific resource concerns, such as the presence of significant archeological sites, threatened, endangered, or sensitive wildlife habitat, and areas with sensitive soils, will also influence outfitter/guide allocations.

Require current and future guiding (except hunting) to occur on Forest Service system roads and trails, or on designated routes mapped in an operating plan approved through an interdisciplinary analysis. In general, do not allow repetitive cross-country routes.

Generally, do not place additional outfitter/guide activities or group activities in the Mt. Elden/Dry Lake Hills Trail System, Pumphouse Wash, Deadman Wash, Walnut Canyon from Fisher Point east, any spring or perennial stream site, except in support of approved research and/or to improve safety or provide site rehabilitation.

If current outfitter/guides cease operations and the activity is considered to be desirable after review, conduct a solicitation process for replacement.

When a proposed use is not consistent with National Forest management direction and can be accommodated on private land, encourage recreation participants to use private land for their activities. Communicate and cooperate with other agencies and businesses to look for ways of providing for activities that are different from the Forest Service mission on properties managed by other agencies or businesses.

Outfitter/guide permits are administered to guidelines as defined by "Meaningful Measures".†

Before permitting outfitter/guides adjacent to National Monuments, contact the National Park Service for coordination. Outfitter/guides might also help meet the mission of the National Park Service in the National Monuments or on adjacent National Forest lands.

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* *Although social encounter criteria apply to all users, limitations based on social encounters will only pertain to commercial operations.*

† *Meaningful Measures (MM) is a process that connects management of the recreation program to our users, to Congress, and to agency decision makers through the establishment of National Quality Standards and the determination of the costs to meet those standards. MM is responsive to changes in funding, priorities, and visitor preferences.*

Group Use

Goals and Objectives

There are opportunities for environmentally responsible group uses of National Forest lands.

Standards

Noncommercial groups of 75 or more are required to obtain a permit. Follow standard interdisciplinary resource coordination when approving permits.

Require one portable toilet (or equivalent) to be supplied by permittee for every 25 participants that stay overnight and one portable toilet (or equivalent) for every 50 people staying for the day in a publicized and/or organized event, except for group use sites that have permanent restroom facilities.

Guidelines

In general, large groups of 74 or less, such as family reunions, weddings, club gatherings, occur within ponderosa pine and mixed conifer areas on less than 40 percent slopes. Avoid placing large group events in riparian and open water areas, ponderosa pine and mixed conifer areas greater than 40 percent slope, and the interior of mountain meadows unless facilities already exist. Direct large groups to pre-determined areas where resource damage is less likely to occur. *

Inform and enforce State regulations for no camping within ¼ mile of open water.

Other more site-specific resource concerns, such as the presence of significant archeological sites, threatened, endangered, or sensitive wildlife habitat, and areas with sensitive soils, will also influence group use allocations.

Evaluate sites used by groups and, based on monitoring results, implement appropriate group size adjustments.

Rock Climbing

Goals and Objectives

Rock climbing areas are managed and maintained for appropriate experience, natural settings, attributes, and conditions, considering ROS objectives, wildlife, heritage, and soil and water resources.

Rock climbing opportunities are provided, while protecting sensitive resources from unacceptable impacts.

Rock climbing areas are managed in partnership with local rock climbers, climbing organizations, and outdoor recreationists.

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* *We will continue current National Forest Policy of requiring groups of 75 or more to obtain a permit. We will continue to encourage groups of 74 or less to enter into a letter of agreement. Both permits and letters of agreement spell out the location, type of activity, sanitation needs, and area clean up.*

Guidelines

Complete a management plan specific to rock climbing to tier from the *Forest Plan*. Climbing policy in the *Forest Plan* may be amended if the development of the climbing plan demonstrates the need.

The climbing plan will include, but is not limited to:

- Existing and new climbing routes
- Climbing implementation schedule identifying funding priorities for climbing management
- Closure measures when needed for threatened, endangered, and sensitive (TE&S) plants and animals and cultural resources
- Schedules for Limits of Acceptable Change (LAC) or other management strategies when needed
- Monitoring

Develop or realign trails into climbing areas as appropriate to provide for public safety and resource protection.

Inventory rock climbing areas to determine their resources, conditions, and significance. Upon evaluation, some other sites may receive short-term, long-term, or seasonal closures to climbing to limit disturbance to threatened, endangered, or sensitive species. Restrictions will be used on a case-by-case basis as determined necessary by wildlife biologists in consultation with U.S. Fish and Wildlife Service where appropriate.

Restrict human activities within approximately one-half (½) mile of occupied peregrine falcon nest sites March 1st through August 15th. The ½ mile protection distance may vary depending on local topography, potential for disturbance, and location of important habitat components. Monitor peregrine nesting success to determine if restrictions are effective.

Restrict human activities where active raptor nests are located. Species potentially impacted include the golden eagle, prairie falcon, Mexican spotted owl, and zone-tailed hawk. Protection distance will vary depending on the species, local topography, potential for disturbance, and breeding season for the species. Raptor surveys will be completed on site-specific areas to determine protection distance.

Provide interpretive information and education on climbing ethics, and resource protection through the use of brochures, signs, visitor contacts, and information stations.

Non-motorized Trails

Goals and Objectives

There are opportunities for a variety of trail experiences and challenges that are consistent with protection of sensitive resources, meet the needs of a diverse public, emphasize the natural environment, and meet ROS objectives.

Non-motorized and motorized trail opportunities provide a variety of challenges and experiences and meet ROS objectives.

There is a network of trails linked to other trail systems, such as City and County trail systems.

The Urban/Rural Influence Zone is actively managed to provide opportunities and lessen environmental impacts.

Trailheads are located in popular areas and provide adequate parking, signs, restroom facilities, public education, and resource management.

Standards

Implement and use the "Meaningful Measures"* process to manage trail guidelines.

Guidelines

Discourage proliferation of unneeded trails by 1) public education, 2) providing well-defined trails that encourage people to stay on designated routes, 3) designing trails that provide a reasonable degree of access, 4) installing trail markers and defining trail edges, 5) providing orientation maps, and 6) obliterating social trails that duplicate system trails and/or cause resource damage.

Relocate existing trails as necessary to protect resources.

For areas outside of the Urban/Rural Influence Zone, develop a primary system of trails and obliterate all trails outside of the primary system. New unplanned trails are also obliterated if they occur.

For areas within the Urban/Rural Influence Zone, create a primary trail system that serves as a collector for trails that originate in neighborhoods. In areas outside of the primary system, evaluate user-created (social) trail systems based on a checklist of criteria and in coordination with the nearby community. The criteria are similar to those listed for road management. Meet interested people around Flagstaff to develop site-specific trail plans. Focus trail planning first in areas with resource concerns, where high user conflicts occur, or in conjunction with other resource management activities.

Connect Forest Service trails to community access points, and use existing social trails where they make sense. Forest Service trail access points must be accessible by the public, which means no exclusive neighborhood entryways. Work with planning and zoning and developers while building plans are still under development. Some trails may provide special needs access.

Where social trails occur within Mexican spotted owl Protected Activity Centers (MSO PACs), delineate a system trail that provides for recreation use and lessens impacts to MSOs. Close and re-vegetate non-system trails in PACs not used for the designated trail.

Provide information and education about the shift in emphasis to more active trail management within the Urban/Rural Influence Zone.

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* *Meaningful Measures (MM) is a process that connects management of the recreation program to our users, to Congress and to agency decision makers through the establishment of National Quality Standards and the determination of the costs to meet those standards. MM is responsive to changes in funding, priorities, and visitor preferences.*

Inventory both Forest Service system trails and non-system trails and identify their desired maintenance levels. Track both motorized and non-motorized trail routes.

Use the ROS Objectives to match trail experiences with ROS objectives.

In rare cases, an exception to ROS objectives may occur in Semi-primitive Non-motorized areas if analysis shows a link is needed for a motorized trail route.

Develop or realign trails accessing climbing locations to well-engineered design that maintains resources.

Annually maintain and update Forest trail implementation schedules and the Forest Trails Inventory and Condition Survey. Perform trail assessments at least every 5 years.

Coordinate with State, County, and communities park departments to connect Forest trails with parks and green-belt corridors, when it is mutually beneficial, provides better public service and development is compatible with other resource management.

Motorized Trails

Goal

Outside of the Cinder Hills OHV area, motorized trails provide semi-primitive motorized experiences with connections to long distance opportunities. There are connections from communities to the secondary road system where feasible. Where community access is lacking, there are areas to trailer OHVs and park.

Guidelines

Identify some motorized trail routes.

Motorized trail opportunities provide long distance connections and meet ROS objectives. Evaluate trails based on the criteria for roads, access, recreation opportunity, and public input.

Convert some roads that are not needed for the road system into motorized trails and decrease to a width suitable for ATV's. Motorized trails will promote Semi-primitive Motorized experiences for individuals and small groups. Allow large group events or races on a case-by-case basis. Motorized trails are well engineered to avoid impacts. Some level II roads (high clearance vehicle use) may be used for portions of motorized trail routes.

Where possible, within the Urban/Rural Influence Zone, provide pass through corridors for vehicles and ATV/motorcycles that lead to separate motorized trails or to the secondary forest road system. Do not provide for unlicensed riders on 50-inch trails if the trails only lead them onto roads where it is illegal to ride. Coordinate trail locations near communities with local agencies and governments.

Scenery

Goals and Objectives

Developments such as roads, trails, camping, day-use sites, and trailheads mimic local materials and landscape characteristics to blend with the adjacent natural-appearing landscape.

Management activities, such as thinning and prescribed fire, result over the long-term, in alterations that appear natural to most visitors.

Guidelines

Provide fast clean-up from management activities and limit short-term visual impacts (1 to 3 years), while meeting fire potential reduction needs, design thinning for long-term scenic quality adjacent to homes and along major highways or near developed recreation sites.

Consider impacts to viewsheds of the three National Monuments, the Sunset Crater Volcano-Wupatki Scenic Loop Road (FR 545) and the Walnut Canyon entrance road (FR 622) and coordinate with Park Service personnel when designing or approving projects in these viewsheds.

State Highways 89A, 89, 180, and Lake Mary Road (FH3) provide a high-quality scenic experience. Provide input to ADOT and Coconino County, as appropriate, that highway improvements and maintenance should blend with existing natural appearing features except when there are safety concerns that cannot be mitigated. Provide input to ADOT and Coconino County to minimize the relative dominance of these highways to the extent possible/practical.

Roads and Off-Road Driving

Goals and Objectives

Consult the *Roads Analysis for the FLEA Area* report, for desired open road network. Reference this information when conducting project level (site-specific) NEPA analysis to close, obliterate, or upgrade roads.

Road conditions and the miles of road should meet ROS objectives as displayed on the *Objectives for Recreation Opportunity Spectrum* map.

The road system provides ample access and concentrates use on a well-designed road system, and maintains unroaded areas in between.

Encourage local, state, or county entities, or private organizations to sponsor a motocross site. Look for opportunities to exchange land for motocross if there is a willing sponsor.

Guidelines

Use the following criteria to evaluate roads and make decisions about their driving condition, their location, or existence.

Reasons for closure or obliteration may include, but are not limited to, one or more of the following criteria:

- Soils that are receiving, or are expected to receive, damage to the extent that soil productivity is or will be significantly impaired
- Slopes exceeding 40 percent where high probability for damage exists
- Riparian areas currently threatened or damaged
- Meadows likely to be or being damaged

- Poorly designed or maintained roads connected or adjacent to stream courses where potential for increased runoff and sedimentation is high
- Roads within stream courses or wetlands (permanently or intermittently wet) reducing hydrologic function
- Visual Quality Objectives (VQO) of Preservation, Retention, or Partial Retention are jeopardized
- Areas of important cultural resource sites vulnerable to damage that are being threatened or damaged
- Tree plantations less than 10 years old likely to be damaged
- Habitat for threatened, endangered, or sensitive species that is threatened
- Key wildlife areas being threatened or damaged
- Areas important to wildlife reproductions such as fawning or nesting areas, where disturbance is causing, or likely to cause, significant stress and reduction of reproductive success
- Areas within designated municipal watersheds
- Areas where user conflict must be resolved to ensure public safety
- Areas considered dangerous for winter off-road driving activities
- Areas within urban or rural residential influenced zones outside of designated motorized routes
- Semi-primitive Non-motorized ROS objectives as set through environmental analysis. See *Objectives for Recreation Opportunity Spectrum* map for the FLEA area in Appendix M.
- Semi-primitive motorized ROS objectives as set through environmental analysis. See *Objectives for Recreation Opportunity Spectrum* map for the FLEA area in Appendix M
- Roads where the level of use or maintenance thereof causes adverse levels of noise affecting wildlife or recreational experiences
- Areas where the road system modifies the surface and subsurface hydrology
- Roads, which cause the introduction or spread of exotic plant species, insects, diseases, and parasites
- Redundant roads
- Roads that foster illegal human activities
- Roads that contribute to the airborne dust emissions, which result in adverse human health concerns
- Roads that adversely affect the agency's direct costs, meaning there are more miles than we can afford to maintain
- Roads that contribute to incidents of high fire starts

Reasons for maintaining roads open may include, but are not limited to one or more of the following criteria:

- Roads that aid in the Agency's enforcement of laws and policies
- Roads required for access to treatment areas, range improvements, utilities, or minerals
- Roads that connect large blocks of land in other ownership
- Roads that provide access for fire suppression vehicles
- Roads that provide access to recreation use sites or areas
- Roads that provide access needs for research, inventory, and monitoring
- Roads necessary to meet peoples' needs and values for roads, such as Native Americans to gather traditional plants and access to traditional sites
- Roads necessary to manage special use sites
- Roads necessary to connect public roads
- Roads that if closed, would have an adverse impact on communities' social and economic health

Consider manageability as an important criterion when establishing boundaries of areas with restrictions and determining which roads will be open and maintained.

Keep the Pinegrove Seasonal Closure Area closed to vehicle access between August 15 and December 31.

Actual road closure or obliteration work occurs after site-specific NEPA and public involvement is complete. Such analysis will usually be accomplished concurrent with other project planning.

Conduct obliteration and re-vegetation work as funds become available. When choosing areas to conduct road maintenance and obliteration, focus efforts in Semi-primitive Motorized and Semi-primitive Non-motorized areas. Of the Semi-primitive Motorized and Semi-primitive Non-motorized areas, consider the Lake Mary and Oak Creek Watersheds as priorities for water quality reasons. Also focus work adjacent to the National Monuments.

Wildlife Habitat

Goals and Objectives

Habitats support diverse, healthy populations of native plants and animals. A natural variety of plant species, age classes, and structures are present.

The impacts of non-native plant and animal species are controlled and the introduction and maintenance of undesirable non-natives is discouraged.

Threatened, endangered, sensitive, and management indicator species are maintained or recovering in the majority of the habitat.

Maintain wildlife travelways to help animals travel between summer and winter ranges, feeding and nesting areas, maternity areas, and dispersal areas. Travelways help ensure genetic mixing necessary for healthy populations.

Mexican Spotted Owl

Guidelines

Do not identify target threshold stands within the Urban/Rural Influence Zone. The allocation of target threshold habitat within the Lake Mary Watershed and Shultz Management Areas would better provide for long-term management of roost/nest habitat for the Mexican spotted owl. Approximately 26 percent of the Shultz Management Area and 11 percent of the Lake Mary Watershed should be managed for target-threshold conditions in the future, due to not allocating target threshold conditions in the URIZ.

Within the FLEA area, survey habitat that potentially could be used for nesting, roosting, or breeding, and is within ½ mile of a proposed site-specific project boundary.

Northern Goshawk

Guidelines

In the Urban/Rural Influence Zone, where possible, limit human activities within the 30-acre goshawk nest stand during the breeding season. In general however, do not curtail human activity such as informal dispersed recreation activities within the Post Fledging Family Areas (PFA). Social trails are likely to occur within portions of PFA's in the urban and rural influenced areas. Locate Forest Service system trails to avoid nest sites within PFA's, within the Urban/Rural Influence Zone. Emphasize the need to control pets on Forest Service system trails through education and enforcement.

Bald Eagles

Guidelines

Bald eagle winter roosts and perch habitat will be evaluated for long-term viability. Silvicultural methods that encourage regeneration and growth of desirable trees may be used near roost sites. Groves of trees may be maintained to provide screening for roost and perch areas. Silvicultural practices will result in the growth of large diameter trees with open crowns in multi-layered stands. Prescribed fires to improve and protect roost areas may be used with effective protection of large trees and snags.

Human activities will be managed so that disturbance does not interfere with the eagles' ability to use the site.

Threatened and Endangered Species

Guidelines

Seek opportunities to add to our base of knowledge about human disturbance to T&E species. This could be a variety of methods that could include but are not limited to, monitoring, survey of habitat, survey of recreation uses, or trail counters. Consider options to gather information when planning, or implementing, or monitoring site-specific projects, or

approving special uses or outfitter guides. Consider partnership opportunities with organizations or agencies to gather information outside of site-specific project planning. A variety of methods could be used to gather information including, but not limited to: monitoring, survey of habitat, survey of recreation uses, or trail counters. Share results and data among resource personnel and line officers for consideration in future projects with wildlife biologists and recreation staff to incorporate lessons learned into the next project. If analysis shows a need, management changes that could include, but are not limited to, relocating roads or trails, limiting season of use, designating types of activities, or reducing numbers of users could result if analysis shows a need.

Land Ownership Planning/Land Classification

Goals and Objectives

In the FLEA area there are a few parcels desirable for the Forest Service to acquire. If a willing property owner comes forward entertain a land exchange or land acquisition. Desirable parcels are a ¼ section of private land in the Dry Lake Hills and there are some isolated, undeveloped parcels in the Lake Mary Watershed.

In addition, there are Arizona State Trust Lands that are desirable to retain as natural landscape. Coordinate the identification of these parcels with the city and the county planning processes. Look for avenues to purchase if the State is a willing seller. Should land exchange authority be granted to the State, consider land exchanges as well.

Guidelines

Lands offered by the United States in a land exchange are tentatively classified as base-in-exchange. Currently, the Forest has 21,133 acres classified as base-in-exchange. Because local and physical conditions may change during the life of this plan, other lands may be considered for exchange. They will generally meet one or more of the following criteria:[*]

- Lands needed to meet the needs of expanding communities;
- Isolated tracts or scattered parcels that cannot be efficiently managed;
- Lands that provide consolidation of the public lands;
- Lands that will improve management, benefit specific resources, or increase management efficiency;
- Lands that are necessary to meet overriding local, regional, and national public needs;
- Lands within the boundaries of incorporated communities or annexed thereto or land within locally approved growth management boundaries;
- Review base-in-exchange plans when private land uses change from wildland and undeveloped uses towards more intensive uses.

If lands do not meet one or more the above criteria they should not be used as base-for-exchange lands. Because change occurs over time, re-visit the base-for-exchange criteria and map periodically and make adjustments based on new information such as updated City and

[*] The following guidelines are repeated from page 86 of the Forest Plan. The only unique direction for FLEA is highlighted in bold. The additional text is provided for context and clarity. There is additional direction on or near page 86 that applies to the land adjustment program.

County plans (examples are the *Regional Land Use and Transportation Plan*, and the *Flagstaff Area Open Spaces and Greenways Plan*). Consult with the Coconino County and City of Flagstaff about land adjustment proposals we plan to take forward into NEPA. Public input on land exchange occurs at the time a site-specific land exchange is proposed.

Forestry

Goals and Objectives

Grass, forbs, and shrubs on the forest floor contribute to biological diversity of the ponderosa pine forest.

Fire should continue to play a natural ecological role within the constraints of human health and safety.

The risk of and potential for destructive crown wildfire is reduced, especially in the Urban/Rural Influence Zone (U/RIZ) and the Wildland Urban Interface (1U) as depicted on the Fire Management Analysis Zones map.

Forest product removal (of any kind) is designed to maintain or restore ecosystem health and desired conditions. The use of National Forest land products, are primarily a means for achieving ecosystem management objectives.

Guidelines

Reduce crown canopy and ladder fuels where needed to reduce risk of stand replacing crown fires.

Reduce competition between closely spaced trees in some areas, to promote future large trees faster and to achieve desired tree sizes and canopy closures outlined in the *Forest Plan* (Mexican spotted owl and northern goshawk habitat guidelines). The parameters within which treatments should be designed are to be relatively assured that the future forest structure outlined in the goshawk guides is not precluded. No single treatment prescription is proposed. Examples of possible prescriptions include but are not limited to restoration models, uneven age models, even-age shelterwood, understory thinning, and prescribed fire.

Reduce competition between closely spaced trees in some areas to promote health and resistance to insects and disease.

Incorporate measures to control non-native and invasive plants into project design.

Maintain connected patches of denser vegetation that, along with topography, provide travel corridors for wildlife to move through the FLEA area. Maintain the two corridors that occur in the Urban/Rural Influence Zone. They are in the vicinity of A1 Mountain/Fort Valley, Naval Observatory, and along the Rio de Flag.

When designing treatment consider landowner wishes within the 150-foot area immediately adjacent to private land. Within the 150-foot area, more trees may be left based on landowner input.

For all the Management Areas in FLEA, Management Indicator species will be the same as they currently are for each original MA, which is based on vegetation type and slope. For example, lands that are covered with ponderosa pine on less than 40% slope will have the Management Indicator Species described for Management Area 3 in the *Forest Plan*.

Where appropriate, design projects to accomplish fuels reduction and maintenance on cultural resource sites.

Within the Urban/Rural Influence Zone, and in the Wildland Urban Interface (1U) as depicted on the Fire Management Analysis Zones map, do not apply the hiding and thermal cover guideline that requires 30 percent cover within a 10K Block.

Distribute wildlife cover where needed within the FMAZ 1U without accruing unacceptable wildfire threat to nearby neighborhoods. Wherever possible, projects should retain cover conditions within wildlife travelways, MSO protected activity centers (PAC's), along canyon rims, and on steeper slopes. Projects within the FMAZ 1U, should attempt to retain 15 percent cover within a given section.*

Dense stand conditions on steep slopes and within MSO PAC's contribute to the targeted 15 percent cover condition. Cover conditions might exceed 15 percent per section due to the presence of steeper slopes or MSO PAC's. In the absence of steep slopes or MSO PAC'S site-specific projects could retain a maximum of 15 percent cover condition to maintain a wildlife travelway through a section. Projects do not have to retain cover conditions of 15 percent, if a given section poses a high fire hazard to nearby neighborhoods

Providing firewood is not an emphasis for oak management.

Non-Native and Invasive Plants

Objectives

The impacts of non-native plant and animal species are controlled and introduction of new non-natives is discouraged.

Guidelines

Text was superceded by Amendment 20: see pages 69 and 69-1.

* The word "section" as used here, means a square mile in a legal description of township, range, and section. A section has 640 acres usually.

Watershed

Goals and Objectives

The biological, physical, and human elements of the landscape sustain ecological processes, functions, and structures appropriate to the FLEA Area ecosystem. Natural disturbance patterns are conserved or restored consistent with human health and safety. Natural elements of the landscape are restored and protected.

Soil function and long-term productivity are sustained so that the soil can resist erosion, recycle nutrients, and absorb water.

Natural vegetative and fuels composition area restored so as to reduce susceptibility to large-scale watershed disturbances, such as large catastrophic wildfire.

The Lake Mary watershed is a high priority for watershed restoration and maintenance from an ecological and socio-economical standpoint. Upper and Lower Lake Mary are important municipal water sources for the City of Flagstaff.

Guidelines

Implement actions to ensure that water quality, and timing support domestic surface water supply needs. Specific items include: to improve wildlife and livestock grazing strategies, provide stream channel stabilization, construct proper drainage and perform maintenance on roads, relocate roads from meadows and other sensitive areas, obliterate unnecessary roads and manage recreation in a way that supports domestic surface water supply needs.

Implement actions to restore a natural vegetative and fuels composition, and ensure that soil condition objectives are met on a landscape scale to reduce susceptibility of large-scale watershed disturbances, such as a large catastrophic fire or insect/disease outbreak.

When implementing site-specific projects, choose Best Management Practices consistent with municipal values and this plan.

Cooperate with the City of Flagstaff and National Park Service to develop study proposals and projects designed to evaluate best management practices, reservoir modifications, and/or operational criteria to address the objectives of maintaining the quality of the municipal water supply and increasing the likelihood of flood flows and improvement of the inner-canyon environment in Walnut Canyon National Monument (per the Stipulation Between The City of Flagstaff and the United States on Behalf of the National Park Service and the Forest Service).

Mountain Meadows*

Goals and Objectives

Soil condition objectives are met and soil functions are sustained so that the soil can readily absorb, store, and transmit water both vertically and horizontally, accept, hold and release nutrients, and resist erosion. Soils are able to maintain resource values, sustain outputs, and recover from impacts.

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* *The additional direction below describes in more detail and with clearer language the existing management direction contained in MA 9.*

Mountain meadows located with the Lake Mary and Oak Creek Watersheds are improved to enhance soil productivity, biological diversity, and help maintain downstream water quality. Improvement measures include: stream channel stabilization, improved cattle grazing strategy, management of wildlife, recreation, and roads within these meadows.

The rate of water infiltration is increased, thereby minimizing surface runoff, reducing on-site sheet, rill and gully erosion, and subsequent sedimentation into connecting waters downstream.

Enhance soil organic matter content to improve physical condition and increase water infiltration, nutrient cycling, and soil productivity.

Vegetative species composition and diversity are increased and the distribution and diversity of vegetative ground cover is improved.

Guidelines

In general, do not locate open roads in meadows.

Provide media and public information focused on the importance of meadows and proper activities within meadows.

Increase and improve vegetative species composition and diversity in the surrounding landscapes to diffuse grazing pressure from elk and livestock.

Riparian and Open Water

Goals and Objectives

Riparian communities benefit riparian dependent resources and support diverse assemblages of aquatic and terrestrial species.

Stream channels have adequate and appropriate plant cover to protect stream banks and dissipate energy during high flows.

Stream flow is adequate to maintain aquatic communities and water sources for wildlife.

Wildlife viewing is recognized as a form of recreation and opportunity for environmental education.

Guidelines

Emphasis is placed on rehabilitation of high elevation riparian communities. Rehabilitation may include: wildlife and livestock grazing management, fencing, stream channel stabilization, road relocation, recreation management, and physical protection of revegetation work.

Ensure that riparian areas are in a condition that improves or maintains high quality water in the Lake Mary and Oak Creek watersheds.

Establish administrative exclosures on representative riparian areas to determine riparian habitat potential.

Follow the trail planning parameters set forth in the FLEA area-wide Guidelines. In addition, develop trails strategy that allows for water access while protecting the riparian community, wildlife habitat, and sensitive plants. At certain locations provide wildlife viewing compatible with wildlife habitat.

Reduce impacts on water quality by such methods as placing toilets in strategic locations, and providing information about proper sanitation practices.

Follow FLEA area-wide criteria related to roads in riparian and open water areas.

Generally discourage off-road driving within ¼ mile of these sites.

Firewood

Guidelines

Consider restricting general firewood gathering for personal use in the Urban/Rural Influence Zone if such use is causing conflicts with other uses, or detracting from road management goals. However, designated firewood cutting areas may be provided under a managed setting as a tool for various objectives, such as removing slash generated by thinning and improving herbaceous understory.

Coordination with National Park Service

Guidelines

Update the Memorandum of Understanding (MOU) between the National Park Service and the Coconino National Forest. The MOU sets up 1) how the agencies communicate when situations arise, and 2) what criteria will be used to make decisions together. The current MOU is for Sunset Crater Volcano National Monument and Wupatki. The updated MOU should cover these Monuments and also include Walnut Canyon National Monument. For the Flagstaff Area National Monuments some of the items that need to be added to the MOU include considerations for: Native American access for traditional uses, law enforcement cooperation, personal use plant gathering, outfitter/guide parameters, commercial filming parameters, boundary management, fire management, location and management of NPS facilities on Coconino NF lands, National Historic Preservations Act (Section 106), National Environmental Policy Act and Endangered Species Act compliance coordination, shared services for monitoring, and cooperative efforts in managing interpretation and visitor services.

Continue cooperative law enforcement efforts with the National Park Service on lands adjacent to National Monuments.

Coordination with the City of Flagstaff and Coconino County

Guidelines

Continue coordination related to fire suppression and fire risk reduction. Continue collaborative efforts to control non-native and invasive plants. Stay alert to changes in land use status. Provide input to the design requirement of new developments (especially when they are adjacent to National Forest), participate as a government liaison in the City of Flagstaff's Open Space Coalition, continue linking City and County trails to Forest Service trails, share public outreach and education tools, and share information about future plans.

Coordination with Researchers

Guidelines

Consider ongoing research in project design both to avoid impacts to research plots and to gain knowledge provided by research results.

Create and maintain a spatial and tabular database of approved research sites.

Refer research proposals to appropriate areas based on FLEA area objectives.

Coordination with Other Organizations

Guidelines

Many different government agencies, individuals, and groups partner with the Forest Service to accomplish various projects on-the-ground. These projects usually result in long-term improvements for wildlife habitat, recreation, or forest health. Continue these activities that have resulted in site-specific actions such as, but not limited to, riparian area improvements, wildlife waters, forest restoration, and trail building.

Data Management

Guidelines

Use current technologies for data collection, data storage, analysis, and management of Forest Resources. Data collection and mapping needs within the FLEA area include user-created roads and trails, dispersed campsites, group use areas, noxious weed locations, and trailheads. Continue current efforts to track wildfires, vegetation condition, and threatened, endangered, and sensitive species habitats.

FLEA Management Areas

Management Areas

There are 10 different Management Areas in the FLEA area.

- Cinder Hills OHV MA is south of Sunset Crater Volcano National Monument and north of the Doney Park area
- Craters MA is west of Doney MA and south of Strawberry Crater Wilderness.
- Deadman Wash MA covers the lands from the northeastern boundary of the Forest to FR 545 that bisects Sunset Crater Volcano National Monument.
- Doney MA surrounds the communities in the Doney Park, Timberline, Fernwood, and Black Bill Park.
- Flagstaff MA contains national forest lands within the Urban Growth Boundary for the City of Flagstaff as described in the *Regional Land Use and Transportation Plan*.
- Lake Mary Watershed MA, which contains the Lake Mary watershed and also encompasses the Upper and Lower Lakes Mary and Marshall Lake.
- Schultz MA includes Dry Lake Hills and Mt. Elden, along with lands east of the Waterline road (the eastern boundary of the Kachina Peaks Wilderness) and west of the Doney MA.
- Environmental Study Area MA now includes three locations. Elden ESA is being expanded and two more areas are being added, Griffith's Spring, Old Caves Crater. .
- Walnut Canyon MA lies south of Flagstaff and includes lands surrounding Walnut Canyon between I-40 and FH3 (Lake Mary Road).
- West MA, which surrounds the communities from Hidden Hollow to Fort Valley, the communities of Kachina Village, Mountainaire, Forest Highlands, and Lake Mary Road, and also includes the lands encompassing Woody Ridge and Rodgers Lake.
- The Strawberry Crater Wilderness remains part of MA1 (Wilderness) and does not change from the current *Forest Plan*.

A mapping error occurred related to the boundary of the Cinder Hills Management Area. The boundary has been adjusted to reflect the current Forest Plan Off Highway Driving map. This caused acreage adjustments in the Deadman Wash, Cinder Hills, and Doney Management Areas.

The Timber Land Use Component charts are a feature of the current *Forest Plan* that was developed in the mid-80's. The classification of forest service lands as to its timber component is a requirement. Just because some piece of land has a suitable timber component does not mean that it will be harvested with timber as the main objective. Most forested lands on the Coconino NF are managed for wildlife habitat reasons as a result of Forest Plan Amendment 11. As a result of this Plan Amendment some lands will be focused on fire hazard reduction, another category of suitable timberlands.

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Craters Management Area - MA 31

Acres: 29,940

Description

The western boundary of this MA is the Cinder Hills OHV area and Doney MA (marked by a large KV electrical line). The northern boundary is the Strawberry Wilderness, the southern and eastern boundaries are the Forest boundary. A portion of the San Francisco volcanic field occurs here with a field of large cinder cones sparsely covered by ponderosa pine trees and shrubs and covered with a deep layer of loose cinders. The landscape of impressive cinder cones in this MA provides remote, dispersed recreation opportunities and there is a stay on designated roads policy. The southeast 1/3 of this MA is pinyon/juniper woodland and grasslands with sparse pinyon and juniper trees and the occasional large cinder cone. The pinyon/juniper areas provide remote dispersed recreation opportunities and supports uses such as livestock grazing and firewood. Maroon Crater is the largest cinder cone and is used for hang gliding. This entire MA is distant from the sites and sounds of urban areas. Two paved roads (FR 545 and Luepp Road) pass through the MA. There are no communities adjacent to this MA. Some of the landforms in the Cinder Hills hold religious and cultural significance to Native Americans. This MA supports plant and animal species adapted to cinder landscapes, pinyon/juniper woodland, and grasslands.

Management Emphasis

Maintain cinder ecosystems, un-tracked appearance of cinder cones, and remote recreation opportunities with a high sense of self-exploration. Continue opportunities for firewood cutting and livestock grazing in the pinyon/juniper woodland. Restore natural grasslands. Re-establish or maintain fire and other ecosystem processes in the pinyon/juniper woodland.

Highlights Include:

- Management Indicator Species (MIS) should be referenced by vegetation and landform type. For example, in pinyon/juniper woodland areas MIS are those listed for MA7.
- Maintain Semi-primitive Motorized ROS settings throughout the MA, with Roaded Natural corridors in between. Provide Semi-primitive Non-motorized settings on the large cinder cones.
- Retain an un-tracked appearance on the large cinder cones and maintain plants and animals adapted to the cinder ecosystem.
- Provide day and overnight-dispersed recreation opportunities with few developed trails or facilities.
- As stated in Management Area 10, of the *Forest Plan*, maintain and improve grasslands, including removing encroaching pinyon/juniper and re-introducing fire. Maintain or improve watershed conditions throughout the MA.
- Protect cultural resources.
- Continue motorized travel restrictions similar to the current Forest orders where motorized use occurs on designated open roads and trails only.

All of the following items are Guidelines.

Non-motorized and Motorized Trails

Provide low mileage of designated non-motorized trails in the MA and encourage self-exploration.

Consider motorized trail corridors in this MA. Consider routes along the secondary road system for multiple-use opportunities.

Discourage off-trail use of any kind on large cinder cones.

Recreation Signing

Clear signing and information should be provided to off highway vehicle drivers to make clear distinction between driving rules in the Cinder Hills OHV area the cinder cones outside of the OHV area.

Cultural/Historical

Continue active monitoring of cultural and historical sites to impacts from recreation, cattle grazing, firewood cutting, and other human uses. Changes in management can occur in response to demonstrated (through monitoring) negative impacts to archaeological resources. Cooperate with available Park Service personnel to accomplish monitoring.

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Deadman Wash Management Area – MA 32

Acres: 58,133

Description

The southern boundary of this MA is Sunset Crater Volcano National Monument, the Cinder Hills OHV area and Doney MA. The western boundary is Highway 89, the northern boundary is Wupatki National Monument, and the eastern boundary is the Forest boundary and Strawberry Wilderness. The southern portion contains portions of the San Francisco volcanic field with a field of large cinder cones sparsely covered by ponderosa pine trees and shrubs and covered with a deep layer of loose cinders. O'Leary Peak is the highest most prominent feature and is topped with a fire lookout tower. Bonito and O'Leary campgrounds are located adjacent to Sunset Crater Volcano National Monument.

The landscape of impressive cinder cones in this MA provides remote, dispersed recreation opportunities and there is a stay on designated roads policy. The center of the MA is pinyon/juniper woodland that provides remote dispersed recreation opportunities and supports uses such as livestock grazing and firewood. The northern 1/3 of the MA is grassland with sparse pinyon/juniper trees. Deadman Wash is a prominent drainage. In the grassland areas, large patches are unroaded and remote recreation experiences are found. Access to Strawberry Crater Wilderness is located in this MA. Most of this MA is distant from the sites and sounds of urban areas. Highway 89 is located on the west boundary and FR545 passes through the southernmost part of the MA. There are private land inholdings along the Highway 89 corridor. A large KV electric line passes through the center of the MA. Some of the landforms hold religious and cultural significance to Native Americans. This MA supports plant and animal species adapted to cinder landscapes, pinyon-juniper woodland and grasslands.

Management Emphasis

Restore and maintain grasslands and grassland adapted wildlife species, especially antelope. Provide large tracts of un-roaded landscape for disturbance sensitive species and remote recreation experiences. Protect cultural resources. Continue opportunities for livestock grazing, hunting, and firewood gathering. Balance recreation use demands on O'Leary Peak with sensitive wildlife species needs and Native American cultural values.

Focus on maintenance and/or improvement of soil condition and watershed function. System roads and trails should receive adequate maintenance so that accelerated soil erosion is minimal. Non-system roads will be rehabilitated and some poorly located roads will be re-located. Rate of implementation will be dependent on funding and Forest priorities for road maintenance.

Highlights include:

- Management Indicator Species (MIS) should be referenced by vegetation and landform type. For example, in pinyon/juniper woodland areas MIS are those listed for MA7.
- Progress towards the settings displayed on the *Objectives for Recreation Opportunity Spectrum* map. This includes expanding the current Semi-primitive Motorized areas, and adding Semi-primitive Non-motorized settings on O'Leary Peak and other large cinder cones. Maintain the Roaded Natural settings along passenger car road corridors and the large KV electric line.
- Roads that access the national monuments other than through NPS control points will be removed from the system. Other secondary roads that are not needed for administrative access will be removed from the system.
- Enforce the stay on designated roads policy.
- Retain an un-tracked appearance on the large cinder cones and maintain plants and animals adapted to the cinder ecosystem.
- Provide day and overnight dispersed recreation opportunities with few system trails or facilities, except for Bonito and O'Leary Campgrounds.
- As stated in Management Area 10, maintain and improve grasslands, including removing encroaching pinyon/juniper and re-introducing fire. Maintain or improve watershed conditions throughout the MA.

All of the following items are Guidelines.

Recreation

Discourage off-trail/road use of any kind on large cinder cones.

Outfitter/Guides

Before permitting outfitter/guides adjacent to National Monuments, contact the National Park Service for coordination. Outfitter guiding might also help meet the mission of the National Park Service in the National Monuments or on adjacent National Forest lands.

Follow FLEA area-wide direction including generally, do not place additional outfitter/guide activities or group activities in Deadman Wash, any spring or perennial stream site, except in support of approved research and/or to improve safety or provide site rehabilitation.

Non-motorized Trails

Determine whether or not the O'Leary Peak road (currently gated) should be designated as part of a non-motorized trail system. Consider methods to discourage off-trail use into sensitive areas, such as wildlife and cultural resources. Continue administrative road use for the lookout.

Provide short loop trail opportunities at the base of O'Leary Peak adjacent to O'Leary campground to encourage recreation use at the base of the Peak and west of O'Leary Road.

Cultural/Historical

Continue active monitoring of cultural and historical sites to assess impacts from recreation, cattle grazing, firewood cutting, and other human uses. Changes in management can occur in response to demonstrated (through monitoring) negative impacts to archaeological resources. Cooperate with available Park Service personnel to accomplish monitoring.

Scenery

Consider impacts to viewsheds of the National Monuments and consider input from Park Service personnel when designing or approving projects in these viewsheds.

Forestry

Green firewood cutting is a tool for grassland restoration. Continue efforts to limit illegal firewood gathering and enforce firewood harvest regulations. However, if firewood cutting for personal home use causes impacts to sensitive areas, adjust firewood policy as needed. This policy is adjusted annually for the Forest.

Livestock Grazing

Take steps to ensure cattle do not concentrate on sensitive cultural sites. Techniques to meet this objective include: placing new improvements such as water sources and fences away from sites; no salting at these sites; change pasture graze period at these sites; and closing parts of pastures to grazing.

Coordination with National Park Service

See FLEA area-wide direction related to Memorandum of Understanding's (MOU's).

Specific coordination items related to this MA include FR 545, Bonito, and O'Leary campgrounds, O'Leary Peak, NPS administrative site, and the location of a potential future new visitor center.

Coordinate with Sunset Crater Volcano and Wupatki National Monuments in managing dispersed recreation use adjacent to the Monuments.

Additional topics include fencing placement/removal needs and proposed minor administrative boundary adjustments. Coordinate future changes in fencing as required by administrative boundary adjustments or to reduce the encroachment of users on to NPS national monuments.

Doney Management Area – MA 33

Acres: 40,530

Description

This MA surrounds the communities of Timberline, Fernwood, Doney Park, Cosnino, Winona, Rain Valley, Black Bill, and extends to the City of Flagstaff's eastern developed areas. The western boundary is Shultz Pass Road and the base of Mt. Elden, the southern boundary is I-40 and Walnut Canyon National Monument, the eastern boundary is the large KV electric line (Craters MA) and the northern boundary is the Cinder Hills OHV area. The City of Flagstaff Landfill is located in this MA.

Large tracts of private land occur with some inholdings of National Forest and Arizona State Trust Lands. These communities are rural residential and many residents raise animals such as horses, sled dogs, and llamas. ATV's are a popular mode of travel. The entire MA provides dispersed recreation opportunities and receives heavy use adjacent to private land. Activities include hiking, horse riding, mountain biking, ATV riding, and driving. Private land has developed quickly and public access to National Forest land is becoming scarce. Forest lands provide a scenic backdrop to residential areas. Many people have listed the forest as one of the quality-of-life items that drew them to Flagstaff. Nearby outdoor recreation opportunities and forest scenery are highly appreciated by residents and tourists. Some cinder cones and drainages in this MA hold traditional cultural values for Native Americans. Highway 89 passes through the center of the MA along with the Townsend Winona Road and I-40.

West of Highway 89 vegetation is ponderosa pine (most less than 40 percent slope). The remainder of the MA is pinyon/juniper woodland with patches of grassland near subdivisions. Cinder soils occur in the northern portion along with some large cinder cones, the most prominent being Old Caves Crater, and O'Neal Crater. The Rio De Flag winds through the MA, located on a mix of private and National Forest land. South of I-40 there are tracts of grasslands. There is deer winter range at the base of Mt. Elden. The Old Caves Crater Environmental Study Area (ESA) is located within this MA (see MA17 for more information). The Arizona Trail passes through the southern portion of this MA.

Management Emphasis

Most of this MA is within the Urban/Rural Influence Zone. Reduce the risk of catastrophic wildfire, especially within the Urban/Rural Influence Zone. Reintroduce fire's natural role as much as possible. Emphasize daytime recreation activities, both motorized and non-motorized. Balance recreation demands with protection of soils, water, and vegetation. Maintain public access to public lands. Restore natural grasslands, and promote healthy pinyon/juniper woodland. Ponderosa pine lands progress towards desired forest structure (goshawk habitat). Reduce instances of illegal activities and trash dumping. Maintain scenic quality. Opportunities for firewood or other forest products are rare, however, firewood sales may be used as a tool for management.

Highlights include:

- Per the *Objectives for Recreation Opportunity Spectrum* map, expand Semi-primitive Non-motorized settings on a few of the large cinder cones in this MA. Expand Semi-primitive Motorized settings in other areas and continue Roaded Natural corridors along major roads. In this MA, the Semi-primitive settings have higher numbers of people than occur in outlying MA's.
- This MA is a high priority for efforts to reduce the risk of catastrophic fire especially in the ponderosa pine lands. Reference FLEA area-wide direction and the *Forest Plan* related to vegetation and fire management.
- Per the area-wide FLEA direction: meet with specific communities and County officials and consider input for Forest road and trail management, discourage proliferation of unneeded trails, create a primary trail system that serves as a collector for trails that originate in neighborhoods, convert some roads that are not needed for the road system into motorized trails, and provide pass through corridors for vehicles and ATV/motorcycles that leads to a separate motorized trails or to the secondary Forest road system.
- MIS should be referenced by vegetation and landform type. For example, in pinyon/juniper woodland areas MIS are those listed for MA7.

All of the following items are Guidelines.

Outfitter/Guides

Before permitting outfitter/guides adjacent to National Monuments, contact the National Park Service for coordination. Outfitter guiding might also help meet the mission of the National Park Service in the National Monuments or on adjacent National Forest lands.

Non-motorized and Motorized Trails

When conducting trail planning as described in the FLEA area-wide direction, include discussions and input from the Coconino County trails coordinator and local groups, as well as community citizens. Complicated access issues and a multitude of recreation demands occur here.

Balance demands for non-motorized and motorized trails in this MA and provide opportunities for both.

Focus road and trail rehabilitation work on the large cinder cones, in meadows and grasslands where impacts are occurring to soils, plants, and cultural sites.

Scenery

Consider impacts to viewsheds of the National Monuments and consider input from Park Service personnel when designing or approving projects in these viewsheds.

Cultural/Historical

Continue active monitoring of cultural and historical sites to impacts.

Fire Suppression

In the ponderosa pine forests the potential for large fires should be low on flat to rolling areas and moderate to high on steep slopes and drainages. In the pinyon-juniper forests the potential should continue to be low to moderate. Very extreme conditions must exist in order for pinyon-juniper forests to support large fires. This area is at high risk for ignition but fire frequency is low.

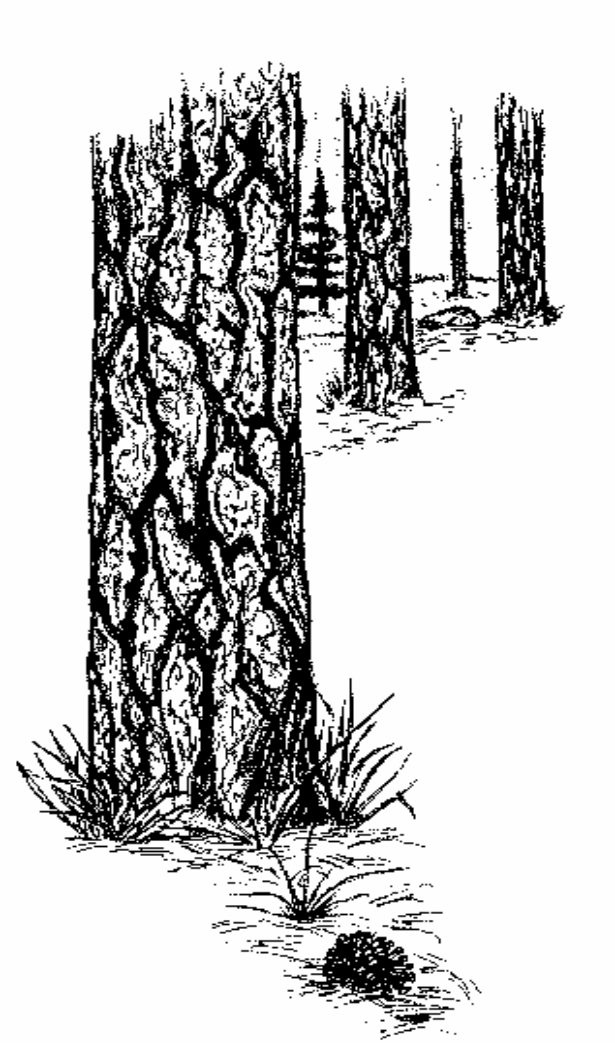
Coordination with National Park Service

See FLEA area-wide direction related to Memorandum of Understanding's (MOU's).

Specific coordination items related to this MA include the potential new location for a visitor center, coordinated prescribed fire activities, fencing of National Monument lands, and illegal access onto the Monument.

Coordination with Centennial Forest

Two Centennial Forest parcels are located in this MA. Coordinate with the Director of the Centennial Forest when conducting management activities on adjacent Forest lands.



Flagstaff Management Area – MA 34

Acres: 1,781

Description

There are approximately 1,295 acres of National Forest land within the proposed Urban Growth Boundary in the Flagstaff Regional Land Use and Transportation Plan (RLUTP). On the south side of Flagstaff there is an area north of the airport identified as a potential regional park. There are lands that surround the airport, which the City has an interest in obtaining for airport use, or office/business park development and there is a parcel near Weitzel School the City is interested in as a neighborhood park.

Management Emphasis

All of the lands not directly needed by the Forest Service for its facilities become low priority for retention in Forest Service ownership. In addition, we also are not planning new developments in these areas. As long as these lands remain in National Forest ownership, within the Urban/Rural Influence Zone (entire MA), reduce the risk of catastrophic wildfire, emphasize daytime non-motorized recreation opportunities and balance recreation demands with protection of the soils, water, wildlife and vegetation, and maintain public access to public lands. Reduce instances of illegal activities and trash dumping. Maintain scenic quality. Opportunities for firewood or other forest products are rare, however, firewood sales may be used as a tool for management.

Highlights include:

- Emphasize Roaded Natural ROS settings with few roads and trails or facilities.
- Continue efforts in partnership with the City of Flagstaff to treat forested stands to reduce risk of catastrophic wildfire.
- **Text was superceded by Amendment 20: see page 23.**

Guidelines are the same as the West MA in the Urban/Rural Influence Zone

Lake Mary Watershed Management Area – MA 35

Acres: 62,536

Description

The northern boundary is the Walnut Canyon MA (including a section of FH3 - Lake Mary Road), the eastern boundary is the FLEA boundary generally located on the Lake Mary Watershed break, the southern boundary is also the edge of the FLEA area, including the north facing slopes of Mormon Mountain (watershed break), the western boundary borders the West MA near the community of Mountainaire. There are scattered parcels of private land mostly concentrated in the northwestern 1/3 of the MA. Communities include Elk Park Meadows, Lake Mary Meadows, Lake Mary store and trailer park, and the east side of Mountainaire.

The majority of this MA is a rolling landscape of ponderosa pine with Gambel oak intermixed. Steep slopes with mixed conifer and shrubs occur on portions of Mormon Mountain and in a few large drainages. Oak and pine provide habitat for Mexican spotted owls and other rare species. Elk are numerous. This MA covers the lake basins of Upper and Lower Lake Mary, including Marshall Lake. Unique and diverse sets of wildlife species use the lakes and shorelines. The eagle/osprey emphasis area is located here.

Along the Lake Mary Road (FH3) corridor there are numerous developed recreation sites including day-use picnic areas, boat ramps, campgrounds, and parking areas. Upper and Lower Lake Mary provide water based recreation such as motorized and non-motorized boating and fishing. Marshall Lake is located off of paved roads and provides non-motorized boating, waterfowl hunting, and fishing. Lowell observatory has facilities located on Anderson Mesa. The Arizona Trail passes by Marshall Lake. Beyond the Lakes, people appreciate dispersed camping, wildlife viewing, hunting, driving for pleasure, and many other kinds of forest recreation. Many campers come from the Phoenix metro-area in the summer months. Other uses include livestock grazing and firewood cutting.

Lake Mary provides water to the City of Flagstaff water system.

This MA includes areas that support high densities of suitable roost and perch trees adjacent to Lower Lake Mary, a heavily used eagle and osprey area given favorable prey conditions. Many existing roost and perch trees are threatened by possible mortality due to insect infestation and loss of vigor due to high stand densities, drought and by potential loss due to catastrophic fire. Current conditions for recruitment of future perch and roost trees (tall, large trees with open crowns) are not favorable due to higher stand densities. Other logical and important locations for future eagle perches and/or roosts adjacent to and south of Lower Lake Mary are omitted from the current emphasis area boundaries.

Management Emphasis

Focus on maintenance and/or improvement of soil condition and watershed function. Degraded meadows and stream channels will be improved through a variety of management activities designed to increase herbaceous ground cover and litter and

reduce soil erosion. System roads and trails will receive adequate maintenance so that accelerated soil erosion is minimal. Non-system roads will be rehabilitated and some poorly located roads will be re-located.

The northwestern portion of this MA is within the Urban/Rural Influence Zone. Reduce the risk of catastrophic wildfire, especially within the Urban/Rural Influence Zone. Reduce instances of illegal activities and trash dumping. Maintain scenic quality. Opportunities for firewood or other forest products are rare in the northwest portion; however, firewood sales may be used as a tool for management.

In the entire MA, re-introduce fire's natural role as much as possible, and ponderosa pine lands progress towards desired forest structure, including northern goshawk and Mexican spotted owl habitats.

In the lakes, maintain the variety of waterfowl, raptors, amphibians, and many different kinds of plants adapted to lake shore environments. Emphasize healthy shorelines adjacent to the water with ample ground cover, and less erosion or compaction. Turbidity is natural to these lakes. Minimize human disturbance to wildlife, where needed, during the critical times. Continue to provide general dispersed and water-based recreation opportunities. Improve wildlife viewing opportunities where wildlife viewing is compatible with wildlife habitat.

Highlights include:

- MIS should be referenced by vegetation and landform type. For example, in ponderosa pine lands less than 40 percent slope MIS are those listed for MA3.
- In the Urban/Rural Influence Zone, per the area-wide FLEA direction: meet with specific communities, interested people, City and County officials and consider input for Forest road and trail management, discourage proliferation of unneeded trails, create a primary trail system that serves as a collector for trails that originate in neighborhoods, convert some roads that are not needed for the road system into motorized trails.
- Maintain existing recreation facilities and improve signing, parking, and sanitation. Balance recreation demands with sensitive resources such as species habitats, fragile riparian vegetation, and erosive soils where they occur. Continue to focus high levels of use on the Lake Mary Road side of the lakes.
- Riparian communities should have adequate native plant cover to protect stream banks and dissipate energy during high flows.
- In the Lake Mary Watershed, high priority is given to minimizing soil erosion and sedimentation from Forest system roads and trails. Proper maintenance and drainage will be emphasized as well as relocation of roads from meadows and obliteration of unnecessary roads.
- Per the *Objectives for Recreation Opportunity Spectrum* map, expand Semi-primitive Motorized areas and maintain Roaded Natural corridors along major roads. New Semi-primitive Non-motorized patches should be created on Mormon Mountain in sensitive species habitat.

Maintain or enhance rare plant populations where they occur. Examples are Flagstaff pennyroyal, Flagstaff penstemon, and Arizona leatherflower.

All of the following items are Guidelines.

Recreation

Provide designated parking spots along Lake Mary Road where it borders Lower and Upper Lakes Mary. Limit parking to certain spots along the highway and/or in current paved parking areas. Techniques may include installing physical barriers and implementing enforcement policies that manage parking.

Provide additional sanitation facilities along the Upper and Lower Lakes Mary corridor, especially where large numbers of people tend to congregate.

Continue current seasonal motorized restrictions in the Pinegrove Seasonal Closure Area.

Recreation Signing

Informational signs and patrols will be similar to what they are today. The Forest Recreation Map is the primary information tool. These areas may be somewhat "advertised."

Near the lakes continue to provide brochures, signs, and other information about the site. In addition, endeavor to improve wildlife viewing and education opportunities.

Camping

Per the *Objectives for Camping* map, camping is designated dispersed camping sites in the Lake Mary and Marshall Lake areas. Continue the current developed campground opportunities and continue general dispersed camping in the rest of the MA.

Designated dispersed camping opportunities will be identified along the south shore of Upper Lake Mary for boat-in camping. Camping should occur in designated sites only on the south shore. Locate designated camping an appropriate distance from raptor nests. Sites will be closed, re-opened or rotated as needed for area rehabilitation. Foster good sanitation.

practices and encourage boaters to pack-it-out, or if needed design sanitation facilities so as not to create sources of human waste pollution.

Outfitter/Guides

Do not issue outfitter/guide permits or permit use that causes significant change for the ROS social or managerial setting, such as allowing airboats or seaplanes on the lakes.

Non-motorized and Motorized Trails

Continue the current non-motorized Arizona Trail corridor through the MA.

Outside of the Urban/Rural Influence Zone, adoption of user-created trails is unlikely. Provide low mileage of designated non-motorized trails in the remainder of the MA and encourage self-exploration.

Consider motorized trail corridors in this MA. The secondary road system should provide for multiple-use opportunities.

Wildlife

Take actions at Marshall Lake to continue use and enjoyment of Marshall Lake and to maintain important waterfowl nesting habitat. Continue maintenance of the Marshall Lake wetland in cooperation with the Arizona Game and Fish Department through such actions as matting, mowing or other actions that create waterholes in the reeds. Maintain the current boat ramp and enhance wildlife viewing opportunities. Consider making a portion of the lake and adjacent forested areas, an exclosure that prohibits dogs, people, and hunting during the waterfowl-nesting season of May 1 to July 15 to increase nesting success of upland game birds.

Refer to more recent management guidelines and conservation assessments that exist for bald eagle winter habitat management.

The designated bald eagle/osprey emphasis area should be expanded to include future perch and roost trees in key areas.

Watershed

This area is a high priority for fixing drainage culverts, relocating roads from meadows, and obliterating unnecessary roads so that erosion does not degrade water quality in Lake Mary.

Roads, trails, camping, and grazing will be managed to improve watershed condition particularly within mountain meadows, springs, and drainages.

Improve watershed conditions in Priest Draw.

Cooperate with the City of Flagstaff and National Park Service to develop study proposals and projects designed to evaluate best management practices, reservoir modifications, and/or operational criteria to address the objectives of maintaining the quality of the municipal water supply and increasing the likelihood of flood flows and improvement of the inner-canyon environment in Walnut Canyon National Monument (per the Stipulation Between The City of

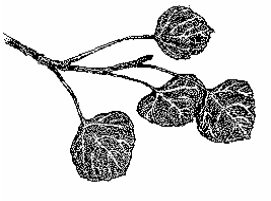
Flagstaff and the United States on Behalf of the National Park Service and the Forest Service).

Fire Management

Per the FLEA Area-wide direction, reduce potential for catastrophic wildfire within the Urban/Rural Influence Zone. Because of prevailing winds, lands south and west of the Urban/Rural Influence Zone should be evaluated for wildfire risks and appropriate measures taken to reduce potential for catastrophic fire. Continue partnerships with city, county, and State fire departments to coordinate fire hazard reduction treatments, prevention, and suppression. Take steps to minimize wildfire losses to key wildlife habitat components such as eagle roosts, osprey nests, snags, yellow pines, oaks and rare plant habitat.

Rare Species

Follow approved management plans or other conservation documents.



Schultz Management Area – MA 36

Acres: 21,289

Description

The west boundary is the West MA, the north boundary is the Kachina Peaks Wilderness boundary and a small portion of FR 418. The east boundary is the Doney MA, the northern boundary is FR 418, the west boundary is Kachina Peaks Wilderness, and the southern boundary is the Mt. Elden Environmental Study Area. Prominent landscape features include the Dry Lake Hills, Mount Elden, and the eastern slopes of the San Francisco Mountain.

Meadows and riparian sites are few and therefore are key parts of the landscape. Dense forests of ponderosa pine and mixed conifer, along with geologic features and stands of aspen, provide habitats for a diversity of wildlife, including raptors, bear, and turkey.

There are a very few small private land inholdings in the MA. A communication site and fire lookout are located on Mt. Elden and accessed via the Elden Lookout Road. A natural gas underground pipeline skirts the southern edge of the MA. The Mount Elden/Dry Lake Hills Trail system provides 47 miles of non-motorized trail opportunities. People enjoy extraordinary outdoor recreation and appreciate the developed trail system with easy access from the City of Flagstaff. Social values include scenic beauty; appreciation of wildlife such as bear, turkey, and raptors, and remote forest recreation opportunities. This entire MA holds important religious and traditional values to American Indians.

Management Emphasis

A small portion of this MA is within the Urban/Rural Influence Zone. Reduce the risk of catastrophic wildfire, especially within the Urban/Rural Influence Zone. Reintroduce fire's natural role as much as possible. Emphasize daytime recreation activities, primarily non-motorized in the Urban/Rural Influence Zone and provide designated camping sites in the Dry Lake Hills. Balance recreation demands with protection of the soils, water, vegetation, and sensitive species. This includes defining limits on recreation individual, group or outfitter/guide use if analysis shows a need.

Maintain drainages and meadows for watershed health and water quality. Ponderosa pine lands progress towards desired forest structure (goshawk habitat). Reduce instances of illegal activities and trash dumping. Maintain scenic quality. Opportunities for firewood or other forest products are rare; however, firewood sales may be used as a tool for management.

Highlights include:

- In the Mt. Elden/Dry Lake Hills area, people should be mostly on the trail system, leaving undisturbed patches of habitat in between. Wildlife habitat will be somewhat fragmented because of the extent of the trail system, but topography and dense mixed conifer vegetation reduce some of the effects.
- Per the *Objectives for Recreation Opportunity Spectrum* map, maintain the Semi-primitive Non-motorized setting in the Dry Lake Hills and expand the Semi-primitive Non-motorized setting below the Waterline Road. Expand Semi-

- Primitive Motorized settings in the remainder of the MA with Roaded Natural corridors along major roads.
- Maintain the Dry Lake Hills Trail system for non-motorized recreation trail opportunities. Few if any additions are needed to this system.
- Maintain the two Mexican spotted owl PACs.
- Management Indicator Species (MIS) should be referenced by vegetation and landform type. For example, in ponderosa pine/mixed conifer on slopes over 15 percent areas MIS are those listed for MA4.

All of the following items are Guidelines.

Recreation

Identify designated parking spots along the roads of this MA where recreational uses are heavy.

Maintain the non-motorized status of the base of Mt. Elden to protect deer winter habitat and cultural sites and to provide for high levels of non-motorized recreation.

Recreation Signing

In the Mount Elden/Dry Lake Hills area there will be extensive signing, brochures, and patrols so that visitors can easily find trails and facilities.

In the area east of the Waterline Road informational signs and patrols will be similar to what they are today. Brochures or other information would be minimal. Recreation opportunities here will not be "advertised."

Camping

Per the *Objectives for Camping* map, designate dispersed camping sites in the Mount Elden/Dry Lake Hills area.

Monitor backcountry camping for impacts.

Outfitter/Guides

Per FLEA Area-wide direction, generally, do not place additional outfitter/guide activities or group activities in the Dry Lake Hills, any spring or perennial stream site, except in support of approved research, and/or to improve safety or provide site rehabilitation.

Non-motorized and Motorized Trails

Maintain the current trail system. Maintain and improve trailhead parking and identify designated parking spots. Relocate trailhead parking on the Elden Lookout Road to balance use with sensitive MSO habitat.

Discourage off-trail use.

Evaluate the Shultz Creek trail for conversion to a non-motorized trail.

Maintain the Waterline Road as a heavily used non-motorized recreation corridor. Administrative use is motorized.

Do not pursue motorized trails in the Dry Lake Hills or east of the Waterline Road.

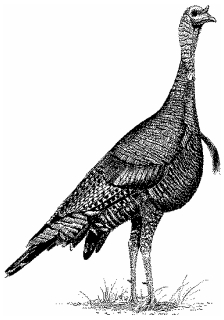
Between Timberline and other communities, consider a motorized connection. Use the secondary road system to provide motorized access.

Wildlife

Within the Semi-primitive Non-motorized ROS settings maintain large tracts of unfragmented habitat for disturbance sensitive species, such as turkey and bear.

Fire Management

Per the FLEA Area-wide direction, reduce potential for catastrophic wildfire within the Urban/Rural Influence Zone. Because of prevailing winds and steep terrain, lands north and east of the Urban/Rural Influence Zone should be evaluated for wildfire risks and appropriate measures taken to reduce potential for catastrophic fire. Continue partnerships with City, County, and State fire departments to coordinate fire hazard reduction treatments, prevention, and suppression.



Walnut Canyon Management Area – MA 37

Acres: 20,566

Description

Adjacent communities include: Fairfield neighborhood, Herold Ranch, and communities along Lake Mary Road.

The northern boundary is private land on the southeast side of Flagstaff (Flagstaff MA) and a portion of I-40. The communities of Fairfield Continental, Herold Ranch, and the new Fairway Peaks are nearby. The eastern boundary is the Walnut Canyon National Monument entrance road, a portion of the Monument boundary, and the FLEA boundary. The southern boundary is the Lake Mary MA and the western boundary is Lake Mary Road. Large tracts of private land border this MA. There are small inholdings of private land along Lake Mary Road, but little private land in the interior of the MA. Walnut Canyon National Monument and Arizona State Trust Land sections are located in the northern ½ of the MA. No paved roads or utility corridors occur except on the boundaries.

Walnut Canyon dominates this MA, running from the end of Lower Lake Mary to Fisher Point and turning east towards Winona. The scenery is spectacular. Cultural sites are numerous and the canyon holds Native Americans religious values. The steepest section of the canyon with the most archaeological sites is located within Walnut Canyon National Monument. The canyon itself supports a multitude of vegetation types and habitats from steep north facing mixed conifer, to riparian vegetation at the canyon bottom. Disturbance sensitive wildlife species occur in secluded portions of the canyon and along the rim. Lands outside of the canyon are ponderosa pine with Gambel oak understory, and some pinyon and juniper.

There are Forest system trails, including the Arizona Trail in the canyon itself and along the rim. Fisher Point is a popular destination for hikers, mountain bikers, and outfitter/guided horse trips. Canyon Vista is popular for climbing. North and west of Walnut Canyon the area provides dispersed recreation opportunities and receives heavy use adjacent to private land and Lake Mary Road. Activities include hiking, horse riding, and mountain biking. Major roads provide access and other areas are closed to vehicles. Walnut Canyon and its major side drainages are closed to motorized vehicles. The areas south and east of Walnut Canyon provide more remote dispersed recreation opportunities including motorized travelways.

Social values include scenic beauty, appreciation of wildlife such as bear, turkey, and raptors, and remote forest recreation opportunities. Despite increasing numbers of people in the greater Flagstaff area, this MA maintains large tracts of unfragmented habitat for disturbance-sensitive species such as owls, turkey, and bear primarily south of Walnut Canyon.

Management Emphasis

Provide Recreational Opportunities. Maintain the quality of the recreational experience throughout this MA. North and west of Walnut Canyon emphasize daytime recreation activities, primarily non-motorized. South and east of Walnut Canyon emphasize remote dispersed recreation (day and overnight) with motorized and non-motorized opportunities. Balance recreation demands with protection of the soils, water, vegetation, and sensitive species.

Manage to protect the values of Walnut Canyon National Monument and complement National Park Service goals for the Monument as described in the National Park Service's General Management Plan.

Maintain scenic quality.

Protect the community - A small portion of this MA is within the Urban/Rural Influence Zone. Reduce the risk of catastrophic wildfire, especially within the Urban/Rural Influence Zone. Reintroduce fire's natural role as much as possible. Opportunities for firewood or other forest products are rare north and west of the Canyon, however, firewood sales may be used as a tool for management.

Protect Walnut Canyon environs. Focus on maintenance and/or improvement of soil condition and watershed function. Degraded meadows and stream channels will be improved through a variety of management activities designed to increase herbaceous ground cover and litter and reduce soil erosion. System roads and trails should receive adequate maintenance so that accelerated soil erosion is minimal. Non-system roads will be rehabilitated and some poorly located roads will be re-located.

Maintain sensitive species habitat. Ponderosa pine lands progress towards desired forest structure, including Mexican spotted owl and northern goshawk habitats.

Reduce instances of illegal activities and trash dumping.

Emphasize the social values compatible with an urban interface that includes recognition of the area's opportunity for wildlife, recreational, and scenic values. Provide forage and security for a variety of game and non-game species of wildlife, provide conservation and environmental education opportunities, provide an area for recreational uses for the Flagstaff public, and manage a portion of the area to give a quiet, almost primitive recreation experience.

Highlights include:

- Per the *Objectives for Recreation Opportunity Spectrum* map, expand Primitive (Non-motorized) settings in and around the steepest portions of Walnut Canyon. Expand Semi-primitive Non-motorized settings on Campbell Mesa, around Walnut Canyon, in the Skunk/Fay Canyon area and northwest of Fisher Point. The Skunk/Fay Canyon areas and lands north of Fisher Point are classified as SPNM ROS settings with one or two SPM road corridors located to protect important habitat characteristics and soil and water needs of the canyon rim. Roaded Natural settings continue in some portions of the MA along the Lake Mary Road corridor.

- Balance recreation demands with sensitive resources such as sensitive species habitats, fragile riparian vegetation, and erosive soils on steep slopes.
- MIS should be referenced by vegetation and landform type. For example, in ponderosa pine lands less than 40 percent slope, MIS are those listed for MA3.
- Reduce the risk of catastrophic fire especially in the Urban/Rural Influence Zone. There is concern for wildfire losses to the National Monument from fires starting southwest of the park. Balance the need to reduce wildfire risk in these areas with desired conditions for Primitive and Semi-primitive ROS settings and disturbance sensitive species habitat. Reference FLEA area-wide direction and other the *Forest Plan* management direction related to vegetation and fire management.
- Per the area-wide FLEA direction: meet with specific communities, City and County officials and consider input for Forest road and trail management, discourage proliferation of unneeded trails, create a primary trail system that serves as a collector for trails that originate in neighborhoods, convert some roads that are not needed for the road system south and east of Walnut Canyon to motorized trails outside of SPNM areas.
- Formalize and recognize commitments by the various federal, State, and local government entities to manage the lands between the urban growth boundaries (UGB) and the national monument to retain its recreational and scenic values. Governmental commitments for the management of recreational and scenic lands between the Walnut Canyon NM and the UGB shall reflect the following objectives and intents:
    - Protect the natural and cultural resources in the urban/wildland interface and the lands surrounding the national monument.
    - Encourage the City and County to designate and require access points from developed or to be developed areas onto public lands.
    - Encourage the City and County to provide a transition zone of open space or low density from higher density development where adjacent to public lands.
    - Cooperate with NPS in its efforts to monitor the use of and impacts on the natural and cultural resources of the Monument.

All of the following items are Guidelines, with the exception of Land Ownership.

Recreation

High-quality daytime recreation will be available with few developed recreation facilities.

As signs need to be replaced, use the Walnut Management Area name to replace the Walnut Recreation Area name.

Outfitter/Guides

Before permitting outfitter/guides adjacent to National Monuments, contact the National Park Service for coordination. Outfitter guiding might also help meet the mission of the National Park Service in the National Monuments or on adjacent National Forest lands.

Follow FLEA area-wide direction including generally, do not place additional outfitter/guide activities or group activities in Walnut Canyon from Fisher Point east, any spring or perennial stream site, except in support of approved research and/or to improve safety or provide site rehabilitation.

Camping

Portions of this MA will be closed to camping as noted on the Camping Objectives Map.

Manage the Canyon Vista area to provide parking, day-use trails, and overnight camping for individuals and groups. Facilities at the site should be designed to limit resource impacts and provide a camping experience at the less developed end of the spectrum for developed campgrounds.

Non-motorized and Motorized Trails

Recreation use should be concentrated along main corridors with few roads, trails, and people in between.

Continue the current non-motorized status in the areas of Skunk and Fay Canyons, Canyon Vista, Fisher Point, and Campbell Mesa.

Within Walnut Canyon itself, discourage off trail use.

Scenery

Consider impacts to viewsheds of the National Monument and consider input from Park Service personnel when designing or approving projects in this viewshed.

Developments such as roads, trails, camping, day-use sites, and trailheads mimic local materials and landscape characteristics to blend with the adjacent natural-appearing landscape.

Provide fast clean-up from management activities and limit short-term visual impacts (1 to 3 years), while meeting fire potential reduction needs, design thinning for long-term scenic quality adjacent to homes and along major highways or near developed recreation sites.

Throughout the entire management area, activities, such as thinning and prescribed fire, result over the long-term, in alterations that appear natural to most visitors.

Do thinning with sensitivity to scenic values and recreation uses. Examples may include but are not limited to, feathering edges of thinning boundaries, careful placement and use of roads to access thinning areas, and creating a variety of tree densities, sizes, types and openings.

Watershed

Cooperate with the City of Flagstaff and National Park Service to develop study proposals and projects designed to evaluate best management practices, reservoir modifications, and/or operational criteria to address the objectives of maintaining the quality of the municipal water supply and increasing the likelihood of flood flows and improvement of the inner-canyon environment in Walnut Canyon National Monument (per the Stipulation Between The City of Flagstaff and the United States on Behalf of the National Park Service and the Forest Service).

Cultural/Historical

Continue active monitoring of cultural and historical sites to impacts from recreation, cattle grazing, firewood cutting, and other human uses. Changes in management can occur in response to demonstrated (through monitoring) negative impacts to archaeological resources. Cooperate with available Park Service personnel to assist with monitoring.

Wildlife

In the Primitive, Semi-primitive Non-motorized, and Semi-primitive Motorized ROS settings maintain large tracts of unfragmented habitat for turkey and bear.

Coordination with National Park Service

See FLEA area-wide direction related to Memorandum of Understanding's (MOU's).

Coordinate with the NPS concerning the fencing of newly acquired National Monument lands, access and interpretation of the "first fort" area, and protection activities, such as reduction of fuel hazard and closure of roads accessing the canyon rims.

Land Ownership Planning/Land Classification

<u>Standard</u>

National Forest jurisdiction will be maintained for all lands in the Walnut Canyon MA. No land exchanges will occur unless the purpose is to acquire land within this MA through exchange of national forest lands elsewhere.

Cooperate with other agencies and local governments to maintain the Arizona State Trust Lands* in Wildland/open space status. Pursue purchase or land exchange options for the purpose of conservation.

* *It is intended that the State sections are the same as those described in the City of Flagstaff's Arizona Preservie Initiative (API) petition sections 22, 28, and 30.*

West Management Area – MA 38

Acres: 36,298

Description

The northern boundary is the FLEA boundary (portion of the Kachina Peaks Wilderness boundary), the west boundary is the FLEA boundary just west of Fort Valley, and bordering Camp Navajo and portions of Woody Ridge. The southern boundary is the rim near the switchbacks on Highway 89A, and the eastern boundary is the Lake Mary MA near Mountainaire, private land on the west side of Flagstaff, and the Schultz MA.

Much of the land in this MA is either private land or Arizona State Trust land with interspersed National Forest land. Adjacent communities include or are nearby: Lowell Observatory, Museum of Northern Arizona, Fort Valley, Hidden Hollow, Cheshire, Fort Tuthill, WL Gore facility, Equestrian Estates, Pine Dell, Mountain Dell, University Heights, University Highlands, Forest Highlands, Kachina Village, Mountainaire, lands south of the Flagstaff Airport, Flagstaff Ranch Road, Old Route 66, Naval Observatory, Dry Lake, and The Arboretum at Flagstaff.

At the top of the switchbacks on Highway 89A, Oak Creek Vista currently receives over 300,000 visitors annually and is the busiest recreation site on the Coconino Forest. No other National Forest developed recreation facilities exist in this MA. Fort Tuthill is a Coconino County regional park and the Flagstaff Urban Trail system has segments that cross National Forest land. The Highway 89A corridor is popular for dispersed camping, that is frequently overflow from Oak Creek Canyon. Other highways in this MA include I-17, I-40, a small segment of Highway 180 and the lower 2 miles of the Snowbowl Road. Areas near urban/residential areas receive high levels of daytime use by nearby residents. Activities include horse riding, mountain biking, ATV riding, jogging, and hiking. There are equestrian centers nearby.

Prominent features include the southern slopes of the San Francisco Mountain, A-1 Mountain, Observatory Mesa, Dry Lake, Rodgers Lake, Woody Mountain, Woody Ridge, and the Oak Creek rim. Vegetation is mostly ponderosa pine with Gambel oak understory and mixed conifer on steep slopes and within drainages. There is a mix of disturbance sensitive and other wildlife species in the MA, and a wildlife travelway near A-1 Mountain provides wildlife access to the San Francisco Mountain and areas south. Areas support Mexican spotted owls and other sensitive species.

The Pumphouse Wash canyon supports a variety of vegetation types and habitats from steep north facing mixed conifer, to abundant riparian vegetation in the canyon bottom. The scenery is spectacular. Disturbance sensitive wildlife species such as peregrine falcon, Mexican spotted owls, turkey, bear, and mountain lion occur in the canyon and along the rim. Pumphouse Wash drains into Oak Creek and high quality water is emphasized.

Many people have listed the presence of the forest as one of the quality-of-life items that drew them to Flagstaff. Nearby outdoor recreation opportunities and forest scenery are highly appreciated by residents and tourists. People enjoy the scenery,

and nearby residents value outdoor recreation and scenic backdrops. The San Francisco Mountain holds significant religious and cultural values to Native Americans, along with some cinder cones and drainages.

Management Emphasis

More than half of this MA is within the Urban/Rural Influence Zone. Within the Urban/Rural Influence Zone, and along the Highway 89A corridor, reduce the risk of catastrophic wildfire, emphasize daytime recreation activities, both motorized and non-motorized, balance recreation demands with protection of the soils, water, wildlife and vegetation, and maintain public access to public lands. Reduce instances of illegal activities and trash dumping. Maintain scenic quality. Opportunities for firewood or other forest products are rare, however, firewood sales may be used as a tool for management. Maintain wildlife travelways.

In the remainder of the MA, re-introduce fire's natural role as much as possible, progress towards desired conditions described (MSO and goshawk guidelines), restore meadows, and promote healthy pine/oak forests. Minimize recreation impacts to disturbance sensitive species. Maintain wildlife travelways.

Take actions to help protect and maintain high quality water in Oak Creek.

Highlights include:

- Along Woody Ridge there are large tracts of unfragmented habitat and remote recreation opportunities including Semi-primitive Motorized and Semi-primitive Non-motorized ROS settings with Roaded Natural corridors. The challenge here will be to maintain remote characteristics as new residential development occurs on the west side of Flagstaff. Maintain Woody Ridge as a Semi-primitive Non-motorized ROS setting with walk-in hunting opportunities.
- Reference the *Fort Valley Ecosystem Management Environmental Assessment* and the *"A-1" 10K Ecosystem Management Environmental Assessment* for site-specific desired conditions and actions.
- Per the *Objectives for Recreation Opportunity Spectrum* map, maintain Semi-primitive Non-motorized settings on portions of Woody Ridge, A-1 Mountain and west of A-1 Mountain. In the remainder of National Forest lands, maintain patches of Semi-primitive Motorized habitat with Roaded Natural corridors along major roads or in smaller National Forest inholdings. In this MA, the Semi-primitive settings have higher numbers of people than occur in outlying MA's.
- The portions of this MA that lie southwest of developed lands are high priority for fire risk reduction efforts. This includes the Urban/Rural Influence Zone and the Wildland Urban Interface as depicted on the Fire Management Analysis Zones map. Reference FLEA area-wide direction.
- Per the area-wide FLEA direction: meet with specific communities and County officials and consider input for Forest road and trail management, discourage proliferation of unneeded trails, create a primary trail system that serves as a collector for trails that originate in neighborhoods, convert some roads that are not needed for the road system into motorized trails.

- MIS should be referenced by vegetation and landform type. For example, in ponderosa pine less than 40 percent slope, MIS are those listed for MA3.
- Maintain the major wildlife corridor that crosses Highway 180 and another corridor between Pumphouse Wash and Woody Ridge, south of Kachina Village.

All of the following items are Guidelines.

Recreation

Areas near to residential private lands may have large numbers of people on some occasions. Daytime activities are emphasized with some designated overnight camping opportunities. Encounters with other people are frequent here, but there will still be places to "get away" and enjoy solitude.

Recreation Signing

Adjacent to residential areas improve trailhead signing, brochures and directional signing. Recreation opportunities will be somewhat "advertised," but each residential area will need to provide input on the level of information provided.

In the Semi-primitive ROS settings, informational signs and patrols will be similar to what they are today. Brochures or other information would be minimal. Recreation opportunities Semi-primitive areas will not be "advertised."

Camping

Per the *Objectives for Camping* map (Appendix M) there should be designated dispersed camping along the Highway 89A corridor and the Freidlein Prairie Road. Expand the area where camping and campfires are prohibited. General dispersed camping should continue in the remainder of the MA.

Non-motorized and Motorized Trails

When conducting trail planning as described in the FLEA area-wide direction, include discussions and input from the County trails coordinator and local groups, as well as

community citizens. Complicated access issues and a multitude of recreation demands occur here.

Balance demands for non-motorized and motorized trails and provide opportunities for both.

Focus road and trail rehabilitation work in the steep drainages, such as Pumphouse Wash, that flow into Oak Creek Canyon and contain fragile plants and rare species. Locate trails and manage recreation use to reduce impacts of woody riparian vegetation and riparian habitat in Pumphouse Wash.

Coordinate trailhead parking with future development on adjacent private lands, in order to take advantage of the opportunity to be proactive in designing trails and trailheads to maintain access to public lands.

Special-Uses

Per the FLEA Area-wide direction, focus special use permits away from urban/residential areas. Generally, do not place additional outfitter/guide activities or group activities in Pumphouse Wash, any spring or perennial stream site, except in support of approved research and/or to improve safety or provide site rehabilitation.

Wildlife

In the Fort Valley and A-1 Mountain areas, maintain the wildlife travelway that connects A-1 Mountain, Observatory Mesa, and the slopes of the San Francisco Mountain.

Lands west of A-1 Mountain in Semi-primitive Non-motorized ROS setting maintain large tracts of unfragmented habitat for turkey and bear.

Watershed

In the Oak Creek watershed, high priority is given to minimizing soil erosion and sedimentation from Forest system roads and trails. Proper maintenance and drainage will be emphasized as well as relocating roads from meadows and obliterating unnecessary roads.

Where perennial stream flow is present, riparian communities should have adequate in-stream flows and adequate plant cover to protect stream banks and dissipate energy during high flows. Channel characteristics and water support natural biodiversity. Ensure adequate instream flow water rights to maintain aquatic communities and water sources for wildlife.

Rare Species

Avoid or limit human disturbance to rare species such as peregrine falcon and Arizona bugbane.

Fire Management

Per the FLEA Area-wide direction, reduce potential for catastrophic wildfire within the Urban/Rural Influence zone. Because of prevailing winds and steep terrain, lands south and west of the Urban/Rural Influence zone should be evaluated for wildfire risks and appropriate measures taken to reduce potential for catastrophic fire. Continue partnerships with city, county, and State fire departments to coordinate fire hazard reduction treatments, prevention, and suppression.

Coordination with Centennial Forest

Some of the Arizona State Trust Land parcels in this MA are Centennial Forest. Coordinate with the Director of the Centennial Forest when conducting management activities on adjacent National Forest lands.

Monitoring Schedule

INTRODUCTION

Monitoring and evaluating Forest Plan implementation is done to inform the decision maker and the public of progress toward achieving the goals, objectives, and standards and guidelines. A Monitoring Schedule is required by CFR 219.12(k) to determine how well objectives have been met and how closely management standards have been applied. The Monitoring Schedule highlights those items that are an existing part of the planned program as well as new items that are legally required.

Monitoring more specifically determines:

- if the management prescriptions are applied as directed;
- if standards are being followed;
- if the Forest is achieving the objectives of the Forest Plan;
- if the Issues are being resolved by the management prescriptions;
- if the effects of implementing the Forest Plan are occurring as predicted;
- if the costs of implementing the Forest Plan are as predicted and are acceptable;
- if management practices on adjacent or intermingled non-Forest lands are affecting Forest Plan goals and objectives.

A detailed annual monitoring schedule is prepared. The schedule includes what, where, and how many items are monitored and who is responsible for monitoring. Project reviews are held on each Ranger District semi-annually to ensure that the prescriptions are being applied.

The annual evaluation report documents an evaluation of the results of the monitoring schedule. A Forest Interdisciplinary Team analyzes and evaluates the significance of the results of these results every five years. If there are significant annual changes indicated, it may be necessary for the Forest Interdisciplinary Team to analyze and evaluate before the five-year interval.

The evaluation report is the basis for any recommendations to the Forest Supervisor on Forest Plan status. The recommendations can include:

- No action needed. Monitoring indicates goals, objectives, and standards are being reasonably achieved.
- Refer recommended action to the appropriate line officer to improve application of management prescriptions.
- Modify the management prescription as a Forest Plan amendment.

- Modify the assignment of a prescription as a Forest Plan amendment.
- Revise the projected schedule of outputs.
- Revise the Forest Plan.

A file of the Forest Supervisor's decisions resulting from conclusions drawn from the results of the monitoring schedule is maintained for future use in amending or revising the Forest Plan. An annual evaluation of these decisions will be prepared and sent to the Regional Forester for consideration.

There are two types of costs for accomplishing items in the Monitoring Schedule. The first one represents costs that are part of the planned program of work and are integral to project execution. Stand exams are an example of such an activity. Stand exams are required in preparing a timber sale but are also a part of the Monitoring Schedule. There are no monitoring costs specified for these phases of the Monitoring Schedule. Costs of overhead are not specified for coordinating and evaluating phases of the Monitoring Schedule. The second type of costs as shown in Table 13 are for compiling additional data reports that are not currently required.

Table 13 Costs per Year for Compiling Additional Data Reports by Items Monitored

	ITEMS MONITORED	COST/YEAR
A2		
	Dispersed Area Condition	$2,500 for Code-a-Site
B1		
	Wilderness Condition	$1,000 for Code-a-Site
C2/C3		
	CINNAMON TEAL	
	Amount of Suitable Nesting Habitat	$700
	Nesting Success	$700
	MACROINVERTEBRATES	
	Species Diversity and Biomass	$500/stream
	DIVERSITY	
	Successional Stages of Major Vegetation Types	$500

The Forest Plan's monitoring requirements follow in Table 14. For each activity, practice, or effect to be monitored, one or more measurement techniques and the expected future condition to be met are specified. A frequency for measuring and reporting the monitored item is established, and the expected accuracy and precision of that measurement is stated. Precision refers to how close to each other repeated measurements of the same quantity are. Accuracy is a measure of how close a measurement is to the actual value of the variable being measured.

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
A2 RECREATION					
Developed Site Use	Determine recreation use and demand	Recreation Information Management (RIM) system use reports/ RVD's	Annually	80/80	±20% difference between projected and actual use, and when capacity exceeded by 25%
Developed Site Condition	Prevent damage and deterioration Meet health and safety requirements	RIM system facility condition reports, project reviews/ Facilities by RIM maintenance class	Annually	80/80	≥10% of facilities at standard service level drop one condition class level
Implementation of ROS Guidelines	Ensure the protection of existing ROS classes	Review project work plans involving vegetative treatment, road/trail construction, or major development/ Acres by ROS class	Annually	80/80	Acreage of any ROS class is changed by more than ±15 over the entire decade
Off-Road Driving Compliance and Damage	Prevent unacceptable damage to resources and meet provisions of Forest Off-road Driving implementation plan	Area and project reviews, RIM system Area condition	Annually	80/80	ORV use or damage conflicts with management goals or lowers visual quality level below objective
Dispersed Area Use and Experience Levels	Determine recreation use and demand	RIM system/ RVD's	Annually	80/80	Use exceeds by 10% or more the ROS social setting criteria for the ROS class

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
A2 RECREATION (continued)					
Dispersed Area Condition	Prevent unacceptable resource damage reviews/ Area condition	RIM system, Code-a-Site inventories, project	Annually	80/80	Sites deteriorate to RIM Condition Class 3 on 15% of the sites Use or damage conflicts with management goals or lowers visual quality level below objective
Cultural Resource Compliance Project	Meet Federal regulation; ensure project compliance with guidelines	Approved cultural resource clearance for each ground-disturbing activity/	Annually	80/80	R-3 direction is not met
Cultural Resource Property Protection	Protect significant properties Site condition	Patrol areas in conjunction with other duties/	Annually	90/90	Properties being damaged/ destroyed by unauthorized uses and/or controllable natural agents
Trail Condition	Determine effectiveness of Forest Trails Program Miles	RIM system, project reviews, trail condition surveys/	Sample 20% Annually	90/90 level	≥10% of system trails drop one condition class
Visual Quality Objective (VQO) Compliance	Ensure Forest standards and guidelines for visual management are met ment, road/trail construc tion, or major development/ Acres by VQO	Review project work plans **and conduct project reviews** - involving vegetative treat -	Annually	80/80	A project reduces visual quality levels below objectives Tolerance standards are listed in the Forest-wide standards and guidelines

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
B1 WILDERNESS					
Wilderness Use	Determine wilderness use and demand	RIM system/ RVD's	Annually	80/80	Capacity is exceeded by 20% in any WOS class
Wilderness Condition	Minimize resource damage and changes of WOS classes, particularly primitive end Area condition	RIM system, Code-a-Site inventories, project reviews/	Annually	80/80	Limits of acceptable change conditions exceed tolerances established for each wilderness as found in implementation plans
C2/C3 WILDLIFE					
Goshawk,Pygmy Nuthatch, And Spotted Owl					
Amount of Mature and Old-Growth Habitat	Applied management achieves desired stand characteristics for old-growth and indicator species do not significantly decrease	Old-growth inventory, compartment exams and habitat capability modeling/ Acres	Annually	65/65	Any 10K Block without 5% of the capable forested land meeting old-growth conditions or being managed to reach the conditions as soon as possible given the constraints of the timber offering schedule
	Maintain habitat capability Percent habitat capability	Habitat capability model/	Annually	65/65	Habitat capability drops **to** 40% of potential
Turkey					
Habitat Capability	Maintain habitat capability habitat capability	Habitat capability model/ affected projects	Annually on 90% of	65/65	When habitat capability drops **to** 40% of potential

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
C2/C3 WILDLIFE (continued)					
Population Trend	Meet population goal Department surveys/habitat capability modeling	Arizona Game and Fish	Annually	65/65	Comprehensive Plan goal not met, 25% decrease in population over 5-year period
Nesting Habitat	Maintain nesting habitat	On-the-ground evaluation year trend review	Annually and 5	65/65	If nesting habitat drops
Red Squirrel Habitat Capability	Maintain habitat capability habitat capability	Habitat capability model/ affected projects	Annually on 90% of	65/65	When habitat capability drops **to** 40% of potential
Elk & Mule Deer Habitat Capability	Maintain habitat capability habitat capability	Habitat capability model/	Annually	65/65	When habitat capability drops **to** 40% of potential
Population Trends and Distribution	Meet population goal Department surveys/habitat capability model	Arizona Game and Fish	Annually	65/65	Comprehensive Plan goals not met by -5% or +10% for elk, by -5% for deer
Abert Squirrel Habitat Capability	Maintain habitat capability habitat capability	Habitat capability model/	Annually	65/65	When habitat capability drops **to** 40% of potential

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
C2/C3 WILDLIFE (continued)					
Hairy Woodpecker, Pygmy Nuthatch, & Yellow-Bellied Sapsucker					
Snag Densities, Sizes, and Species (Existing and Future)	Maintain habitat capability inventories, project recon-naissance and habitat capability modeling/acres	Compartment exams, snag	Annually	65/65	When prescribed snag densities and sizes are not met on at least 75% of area evaluated over 5-year period
Plain Titmouse					
Amount of Mature and Old-Growth Pinyon-Juniper	Maintain habitat capability habitat capability	Habitat capability model/	Annually	65/65	Any 10K Block without 5% of the capable forested land meeting old-growth conditions or being managed to reach the conditions as soon as possible
Snag Densities and Sizes of Pinyon-Juniper	Maintain habitat capability inventories, and project reconnaissance/acres	Compartment exams, snag	Annually	65/65	When prescribed snag densities and sizes not met on at least 75% of area evaluated over 5-year period
Antelope					
Forage Availability	Maintain habitat capability surveys, habitat capability model/habitat capability	Production-Utilization years on each graz-ing allotment	Annually and 9-13	65/65	Habitat capability drops **to** 40% of potential

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
C2/C3 WILDLIFE (continued)					
Antelope (continued)					
Population Trends	Meet population goal Department surveys/ Numbers	Arizona Game and Fish	Annually	65/65	Comprehensive Plan goals not met by 5% below goal
Cinnamon Teal					
Amount of Suitable Nesting Habitat	Maintain habitat capability density method) or score-cards/acres	Field surveys (height selected wetlands	Every 5 years on	65/65	25% decrease in suitable habitat from previous 5 years
Nesting Succes	Maintain habitat capability cooperative survey with Arizona Game and Fish Department/ Numbers	Systematic field sampling, selected wetlands	Every 5 years on	65/65 5 years	25% decrease from previous
Riparian Areas					
Lincoln's Sparrow, Lucy's Warbler, & Yellow-Breasted Chat					
Habitat Condition	Maintain habitat capability and systematic field sampl-ing using riparian scorecard analyses/acres	Habitat capability modeling annually	5% of stream miles	65/65	10% of acres decrease in condition rating

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
C2/C3 WILDLIFE (continued)					
Aquatic-Macro Invertebrates					
Species Diversity and Biomass	Maintain aquatic habitat effectiveness	Systematic field sampling (modified surber sampling)/	Every 5 years on selected streams	65/65	BCI index falls below 80 (Good)
Threatened And Endangered Species					
Amount of Suitable Habitat	Meet Federal regulation Acres	Field surveys/	Annually	65/65	Any potential impact on occupied habitat
Population	Meet recovery plan goals	Field surveys, U S Fish and Wildlife Service surveys/ Numbers	Annually	65/65 populations	5% decrease in local
Sensitive Species*					
Amount of Suitable Habitat and Population Trends	Manage at appropriate levels to prevent listing as threatened or endangered species	Field surveys/ Acres	5 years	65/65	10% decrease in local populations

* Due to limited funds and work priorities, not all known sensitive species will be monitored during the Plan's life Species management plans, which will include monitoring, will be prepared on a priority basis Priority will be determined based on factors such as status with the USDI Fish and Wildlife Service and impacts from land use activities

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
C2/C3 WILDLIFE (continued)					
Diversity Successional Stages of Major Vegetation Types	Meet Federal regulation (NFMA) habitat diversity model/ acres	Compartment exams, field surveys, timber inventory,	Every 5 years	65/65	25% change from predicted levels
Habitat Improvements Condition of Structural Improvements	Identify those structures which must be reconstructed	Inspections/structure	50% of structures per	95/95	30% of structures have reached their 50-year life span or have deteriorated to that condition sooner despite maintenance
Stream temper-ature of cold water fisheries	Monitor current conditions and effects of management practices on stream temperature to assure compliance with State water quality standards and tolerance levels for cold water fish	Maximum temperature thermometers	All perennial cold water streams in the first decade Five projects annually	95/95	Not meeting State Standards Exceeding tolerance levels for cold water fish as a result of management activity
D2 RANGE O&M					
Permitted Use	Meet Federal regulation, check for term grazing permit and Plan compliance	Annual Grazing Statistical Report/ AUM's Forest-wide	Annually	100/98	+10% or -30% of target output

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
D2 RANGE O&M (continued)					
Actual Use	Check compliance with term grazing permit, Allotment Management Plan (AMP), and Forest Plan	Grazing actual use record, permittee reports, and actual range counts/ AUM's Forest-wide	Annually	85/80	±10% of Permitted Use levels
Capacity	Meet Federal regulation, determine sustained livestock stocking levels	Production and utilization surveys, range inspections/ AUM's Forest-wide	50% of Forest acres per decade	85/70	±15% of most recent Forest-wide studies
Range Condition and Trend	Meet Federal regulation, identify changes in range condition and trend, recommend changes in management, and determine shifts away from grass aspect due to overstory	Range analysis, transect data, photo plots, inspection records/ Acres	50% of Forest acres per decade	75/60	+10% change in unsatisfactory range acres over previous study
Allotment Management Plan Status	Meet Federal regulation, determine if permittee is compliance, and if AMP reflects current needs of resource Plan	Actual use, permitted use, in capacity records, range analysis, production and utilization studies, and allotment inspections/	Yearly to once every 10 years per allotment	95/95	30% of the AMP's will expire or do not reflect current status of allotment's resources

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
D3 RANGE IMPROVEMENTS					
Condition of Structural Improvements	Meet Federal regulation, and identify those structures which must be reconstructed	Range inspections, range analysis, permittee reports Structure	50% of range structures per decade	95/95 that condition maintenance	30% of range structures have reached their 50-year life span or have deteriorated to sooner despite
Condition of Nonstructural Improvements	Meet Federal regulation, and identify those vegetative improvements that require retreatment Acre	Range inspections, range analysis, production and utilization surveys, and permittee reports/	50% of treated acres per decade	90/90 over 15%	40% of range nonstructural rovements are deteriorating and undesirable plants are invading site, canopy cover is
Forage Condition in Transitory Range	Determine and monitor added capacity created behind timber and firewood cuts	Range inspections, pre-sale review, compartment exams/ Acre	5-10 years on 50% of transitory acres	85/80	-25% change in available forage on transitory range
E4 TIMBER REFORESTATION					
Practices and Assumptions	Ensure that: -Regeneration is obtained within 5 years after final harvest cut and scheduled planting is accomplished **or prior to final harvest cut when natural regeneration is planned.** Data Base/ Acres	Annual Reforestation/TSI Needs Report, plantation survival surveys, **stand certification,** silvicultural prescriptions, post-sale administrative review, Timber Management Information System (TMIS), Stand **10th years).**	Annually (plantation survival surveys are 1st, 3rd & 5th growing seasons) or as scheduled. **Annual stand certification for natural regeneration stands (5th &**	95/90	If planned accomplishment varies 25% from schedule at 8-year intervals, ID Team evaluates.

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
E5 TIMBER STAND IMPROVEMENT					
Timber Stand Improvement Acres and Assumptions	Ensure that: -- Scheduled TSI projects are accomplished **Reduce insect and disease risk.** Acres	Silvicultural prescriptions, accomplishment reports, certified projects, Refores-tation/TSI Needs Report, Stand Data Base/	Annually	90/90	If cumulative deviation for 8 years falls 33% below planned program, ID Team evaluates
E8 TIMBER					
Silvicultural Assumptions and Practices	Ensure that: -- Appropriate management is applied to Retention and Par-tial Retention zones and riparian areas, -- Rotation age and CMAI assumptions are correct, -- Silvicultural prescrip-tions follow management area standards, -- Silvicultural prescrip-tions precede vegetative treatments, -- Silvicultural prescrip-tions are practical and achieve desired results	Silvicultural prescriptions, EA's, project reviews	Annually	90/90	Silvicultural review of assumption validity, ±15% of Forest averages

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
E8 TIMBER (continued)					
Timber Assumptions: Volume, Productivity, Condition Class, Acres Harvested	Ensure that: -- Board foot/cubic foot ratios are correct, -- Volume/acre yield is correct, -- Condition class assignments are correct, -- Schedule of acres harvested is correct	Sale review, EA's, cruise summaries, TMIS, compartment exams, stand data base Use the same conversion ratios as used in Plan calculations/ As appropriate	Annually	80/80	Sale review of assumption validity, +15% of Forest averages
Size of Openings	Ensure that: -- Openings comply with size limits and are periodically evaluated for appropriateness	EA's, presale and administrative reviews, and post-sale reviews/ Project area	Annually	90/90	Unacceptable results of an ID Team or administrative review
Acres of Overstory and Final Removal Harvest	Meet Federal regulation, measure prescriptions and effects	TMIS, Staff review of 5% of treatment projects **(at least 2 projects)** /Acres	Annually	90/90 evaluates	Planned treatment varies ±25 percent from schedule at 5-year intervals, ID Team
Acres of Intermediate Harvest	Meet Federal regulation, measure prescriptions and effects	TMIS, Staff review of 5% of treatment projects **(at least 2 projects)** /Acres	Annually	90/90	Planned treatment varies ±25% from schedule at 5-year intervals, ID Team evaluates

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
E8 TIMBER (continued)					
Board Feet of Net Sawtimber Offered, **sold, and harvested**	Meet Federal regulation, measure output, assure timber offered **or available for offer meets, but does not exceed, the allowable sale quantity.**	PAMARS (annual reporting system), programmed harvest reports/ MBF	Annually	90/90	±20% annually or ±20% over 5-year period
Cords of Firewood Available	Ensure that: -- Green firewood is made available, -- Potential firewood from timber sales and road building is made reasonably available to the general public before slash disposal	Review annual total of firewood sale reports, firewood advertised but not sold, and free use/ Cords	Annually	70/70	Firewood use increases by more than 10% per year; evaluated at 5th year
Yield Projections	Establish GSL studies in -- Permanent plots in regener- Ensure that: Yield projections are correct	First decade cooperation with RMFRES/ ated stands/ MBF/acre and/ or trees/acre	90/95	Less than ±10% accomplishment of scheduled permanent plots at the end of Decade 1	

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
E8 TIMBER (continued)					
Re-evaluation of Unsuitable Timber Lands	Evaluate the accuracy of suitable timberlands classification, periodically re-examine lands identified as not suitable for timber production to determine if they have become suited and could be returned to timber production	Review new or updated soil survey data, compartment exam, project plans, timber planning process/ Acre	Cover entire Forest in 1st decade (1/10 of Forest annually)	90/80	Re-evaluate at time of Plan Plan revision
F2/F3 WATERSHED/SOIL/AIR					
Watershed Condition of Forest Lands	Meet Federal regulation, ensure that Forest watersheds in satisfactory condition by 2020, assure productivity of the land is maintained	Standard Watershed Condition Inventory according to R-3 Hydrology Note 14 Photo points, occular estimates to determine trends/acres	10% annually	80/80	5% decrease in ground cover
Watershed/Soils Prescriptions	Monitor projects to determine 1) compliance with recommendations and suitability of recommendations and Best Management practices, and 2) to ensure water quality standards are met	Review soil disturbing projects for compliance with Best Management Practices and water quality standards	Minimum of 1 project per District per year	N/A	Deviation from use of Best Management Practices and Standards and Guidelines Ineffective Best Management Practices

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
F2/F3 WATERSHED/SOIL/AIR (continued)					
	Monitor watershed condition in project areas Note 14)/Project	Standard watershed condition transects (per Hydro	1 Project/year Forest-wide	95/95	
Riparian Improvement Projects	Resolve Issues at Forest level and meet Federal regulation; review riparian improvement projects for changes in ground cover, species composition, bank stability, stream flow and water quality changes, effectiveness of and compliance with recommendations	Standard watershed condition transects, ocular, estimates and professional judgment/ Project	1 Project/year Forest-wide	90/90	Not meet MMR's
Riparian Areas	Monitor condition and trend of riparian areas photo points	Standard watershed condition transects, ocular, estimates, photo points	5 percent annually	90/90	Not meet MMR's
Road Obliteration	Ensure compliance with Standards and Guidelines Miles concerning road densities Forest Issue related	Work accomplishment reports/ years 3, 6, 9)	Annually (Report in	90/90	±25% of planned
Water Quality	Ensure compliance with Standards and Guidelines, State and Federal Water Quality Standards	Fecal coliform sampling at sites designated for full body contact	3 Sites Annually	80/80	Not meet Standards and Guidelines, State and Federal laws, for full body contact waters

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
G1 MINERALS					
Compliance with Terms of Minerals Operating Plans	Meet legislative mandate and Agency guidelines	Field checks/ Plans	Annually	90/90	Non-compliance
Non-patented Mining Claim Compliance	Minimize illegal mining activity	Field checks, BLM file checks	Annually	80/80	Non-compliance
J3 SPECIAL USES					
Special Use Permits	Process and administer special use permits in accordance with established guidelines	Land Uses Report (LUR), field inspections/ Permits	Annually	80/80	Forest is unable to meet minimum standards
Land Purchase, Acquisition, and Exchange	Consolidate Forest lands and meet public needs Cases	Forest Land Adjustment Plan ,MAR target/	Annually	80/80	Accomplishments are 10% or more below targets
Occupancy Trespass	Minimize Forest trespass problems Cases resolved vs new cases	Field checks, landline location/	Annually	80/80	Number of new cases exceeds cases resolved, resulting in net increase in total number of cases
Landline Location	Maintain Forest boundary target/ Miles	Landline location, MAR	Annually	98/98	-10% of planned

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
L3 ROADS					
Arterial/ Collector,	Ensure compliance with identified needs for Miles	Work accomplishment reports/	Annually	95/95	±20% of planned
Construction/ Reconstruction	arterial/collector recon-struction Forest Issue related				
Purchaser Credit Roads	Ensure compliance with identified needs for P/C construction/reconstruction	Work accomplishment reports/ Miles	Annually	95/95	±20% of planned
P2 PROTECTION					
Growth Reduction and Mortality Caused by Insect and Disease Infestations	Ensure endemic and introduced infestations do not become epidemic Reduce adverse effects of dwarf mistletoe and reviews/ Acres, Forest-wide	Integrated Pest Management aerial observation by R O entomologists, compartment exam, project inspections	Annually	90/85 Dwarf mistletoe infections are not reduced where treatments have been applied	Introduction of new insect or disease or spread of an existing insect or disease beyond endemic levels
Air Quality	Ensure prescribed fire does not cause violations of State and Federal air quality standards in sensitive areas	Project reports, field monitoring	Annually	85/85	Do not meet legal standards
Fuel Treatment Outputs	Ensure balanced fuel treat-ment outputs, emphasizing utilization	Accomplishment reports/ Acres	Annually	95/95	±25% of programmed targets

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
P2 PROTECTION (continued)					
Wildfire Acre PAR's	Ensure wildfire acres are within projected annual burned acres period and by Fire Management Zone where acres are not specific to MA's	Reports/ Acres	Annually	95/95	25% above projected average annual wildfire burned acres Forest-wide over a 5-year
Cost of Suppression, Protection, Organization, and Net Value Change	Keep fire management program cost effective	PAMARS/ Dollars	Annually	95/95	5% increase in real costs
Fire Suppression Effectiveness	Meet Federal regulation and measure prescriptions and effects effective in controlling fire losses within prescription; the use of the fire budget analysis process to determine fire management efficiency; and reviews of selected fires Annual inspections, periodic reviews, and use of fire budget analysis process as needed	Periodic inspections and reviews to determine if fire management organization is	Annually	90/90	5% of wildfires do not comply with standards and guidelines

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
P2 Protection (continued)					
Law Enforcement Person Hours	Improve law enforcement Forest Issue related case loads, solution rates and public complaints Based on: protection of cultural resources, Off-road Driving damage, firewood theft, dollar cost of vandalism and trends in user protection Update monthly using LEMARS	Professional evaluation of trend based on a review of	Annually	95/95	Program effectiveness evaluated by ID Team every 3 years Determine effectiveness by degree of resolving identified Forest issue
T1 GENERAL ADMINISTRATION					
Citizen Participation Plans Public Affairs Standards	Measure responsiveness to potentially affected interests Completed contacts and actions	Citizen Participation Plan and Public Affairs Plan review/	Quarterly	80/95	A significant Issue is identified
Verification of Unit Cost Used in Plan Compared to On-the-Ground Cost	Acquire accurate cost data sentative sample of projects and programs including both force account and contract Discount to 1982 dollars for comparison to Plan costs/ Dollars	Actual costs from a repre-	Annually	80/80	In general, ±25% However, large cost items such as road constructions and logging cost would have a smaller degree of acceptable variability, of ±10%

Table 14 - Monitoring Plan

Items Monitored	Intent	Monitoring Method Unit of Measure	Measuring Frequency	Percent Accuracy/ Precision	Variability that would initiate Re-evaluation
T1 GENERAL ADMINISTRATION (continued)					
Effects of Management on Adjacent Lands on National Forest Goals and Objectives	Determine effects of management of other ownership on Forest Plan plans, new issues	Reports from appropriate resource monitoring items, review of other Agency	Every 5 years	N/A	Unacceptable results of an ID Team Review

PROGRAM COMPONENT INDEX AND MANAGEMENT INFORMATION HANDBOOK ACTIVITIES INDEX – APPENDIX A

Program Component Index

A2	Recreation Operation and Maintenance
A3	Recreation Improvements
B1	Wilderness
C2	Wildlife and Fish O&M
C3	Wildlife and Fish Habitat Improvements
D2	Range O&M
D3	Range Improvements
E4	Reforestation
E5	TSI
E8	Timber Sales
F2	Soil, Water, and Air O&M
F3	Soil and Water Improvements
G1	Minerals: Energy
G2	Minerals: Nonenergy
J2	Land Management Planning
J3	Landownership Management
L2	FA&O and Road O&M
L3	FA&O and Road Construction/Reconstruction
P2	Forest Fire Protection
P3	Fuel Treatment With FFP
T1	General Administration

Primary Code	Code Description
A01	Recreation Planning
A02	Inventory
A03	Cultural Resource Evaluation and Assessments
A04	Cultural Resource Protection and Enhancement
A05	Facility and Site Reconstruction
A06	Facility and Site Construction
A07	Facility and Site Management
A08	Use Administration
A11	Trail Construction
B01	Wilderness Planning
B02	Wilderness Inventory
B03	Wilderness Use Administration
C01	Survey, Planning, Prescriptions, Monitoring, Corporation, and Administration
C02	Non-structural Habitat Improvement
C03	Structural Habitat Improvement
C04	Structural Habitat Maintenance
D01	Range Resource Planning
D02	Range Resource Inventory
D03	Range Non-structural Improvement
D04	Range Non-structural Improvement Maintenance
D05	Range Structural Improvement - New
D06	Range Structural Improvements - Maintenance
E00	Timber Resource Management Planning and Inventories
E03	Silvicultural Examination and Prescriptions
E04	Reforestation
E05	Timber Stand Improvement
E06	Timber Sale Preparation
E07	Timber Harvest Administration
E09	Genetic Forest Tree Improvement Program
F01	Inventory
F02	Planning
F03	Improvement
F05	Resource Inventory Reports
F06	Resource Interpretations (S&PF)
G01	General Technical Inventory and Evaluation
G02	Site Specific Technical Investigation
G03	Processing of Exploration Proposals
G04	Processing of Lease Applications
G05	Processing of Site-Specific Development Proposals
GO6	Administration of Operations
G07	Contests, Hearings, and Appeals

Primary Code	Code Description
J01	Special-Use Management (Nonrecreation)
J02	ROW Grants for Roads and Trails
J03	Federal Energy Regulatory Commission License and Permits
J04	Withdrawals, Modifications, and Revocations
J05	Lands Status Maintenance
J06	Property Boundary Location
J07	Property Boundary and Corner Maintenance
J09	Other Land Title Claims Management
J10	Encroachment
J11	Landownership Planning
J12	Land Adjustment Planning
J13	Land Exchange
J17	Land Sales, Grants, and Selections
J18	ROW Acquisition
J22	Forest Level Planning
L01	Transportation System Planning and Inventory
L02	Arterial Road Preconstruction
L03	Arterial Road Construction Engineering
L04	Arterial Road Construction
L05	Arterial Road Reconstruction
L06	Collector Road Preconstruction
L07	Collector Road Construction Engineering
L08	Collector Road Construction
L09	Collector Road Reconstruction
L10	Local Road Preconstruction
L11	Local Road Construction Engineering
L12	Local Road Construction
L13	Local Road Reconstruction
L14	Timber Purchaser Road Construction
L15	Timber Road Construction Supplementation and Contribution
L16	Bridge and Major Culvert Preconstruction
L17	Bridge and Major Culvert Construction Engineering
L18	Bridge and Major Culvert Construction/Reconstruction
L19	Road Operation
L20	Trail Inventory and Planning
L21	Trail Reconstruction
L22	Trail Construction/Reconstruction
L24	FA&O Construction/Reconstruction
L25	FA&O Facility Maintenance
L28	Dam Administration and Maintenance
L29	Timber Purchaser Road Reconstruction
L30	Potable Water Systems, Construction/Reconstruction
L31	Potable Water Systems, Operation, and Maintenance
L35	Radio System O&M

Primary Code	Code Description
P01	Fire Management Planning and Analysis
P02	Fire Prevention
P03	Fire Detection
P04	Primary-Initial Attack Forces
P07	Forest Fire Support and Facilitating Service
P10	Fuel Management Inventory
P11	Treatment of Activity Fuels
P12	Treatment of Natural Fuels
P13	Fuelbreak Construction
P14	Fuel Treatment Area Maintenance
P19	Aerial Transport of Personnel
P20	Aerial Transport of Goods
P21	Aerial Applications of Materials
P22	Aerial Platform
P24	Law Enforcement
P25	Cooperative Law Enforcement
P27	Cooperative Search and Rescue
P34	Forest Pest Management

Surveys and Technical Assistance (S & PF)

T01	Line Mgt
T02	Program Support

APPENDIX B
MANAGEMENT AREAS[1]

No.	Description	Analysis Areas	Acres
1	Wilderness	35-46	**155,910[2]**
2	Verde Wild & Scenic River	34	**2,888**
3	Ponderosa pine & mixed conifer < 40% slopes	1-9, 11, 12, 57, 59	**511,015[3]**
4	Ponderosa pine & mixed conifer > 40% slopes	10, 10a, 13, 13a	**46,382[4]**
5	Aspen	14	**3,450**
6	Unsuitable timber land	15, 16	**67,146**
7	Pinyon-juniper woodland < 40% slopes	17-19	**273,815[5]**
8	Pinyon-juniper woodland > 40% slopes	20	**19,077[6]**
9	Mountain grassland	25	**9,049**
10	Transition, grassland & sparse PJ above Rim	26, 27	**160,494[7]**
11	Verde Valley -- desert grass, sparse PJ, cypress, and chaparral	28, 29	**169,529**
12	Riparian and open water	32, 33	**20,490**
13	Cinder Hills	31	**13,711**
14	Oak Creek Canyon	30	**5,388**
15	Developed recreation sites (public & private) and Fairfield Snow Bowl	22-24, 58	**874[8]**
16	Inner Basin	21	**972**
17	Special Areas -- RNA's (outside wilderness), Geologic, and Botanic Areas	48-51	**4,459**

[1] Acres updated to match current geodatabase acres (1,837,288) 12/2007. The following footnotes explain differences in original plan acres, no changes were made with 12/2007 Errata to this historic information. Areas with dual designation (such as RNA's in Wilderness, W&SR in Wilderness) are all accounted for in Wilderness in this table (no double counting). Dual designations are displayed in the Wilderness MA.

[2] Wilderness acres in plan were 150,180 originally, adjusted to match Wilderness Bill.

[3] Acres do not match AA list because 12,233 acres removed from the AA's to make a portion of MA19

[4] Acres do not match AA list because 321 acres removed from AA's to make a portion of MA19 and 375 acres left over from AA 53 added in here.

[5] Acres do not match AA list because 44,952 acres removed to make a portion of MA11.

[6] Acres do not match AA list because 66,699 acres removed to make a portion of MA11

[7] Acres do not match AA list because 27,279 acres were added from AA's 28/29 to adjust the acres for MA11

[8] Includes existing and potential developed sites, both public and private (summer homes, organization sites, and concessionaire -- ski area and lodges). Only the acreage of selected potential sites will be included

APPENDIX B (Continued)

MANAGEMENT AREAS

No.	Description	Analysis Areas	Acres
18	Environmental Study Areas	52, part of 53	**1,577**
19	Mogollon Rim		**12,044**
20	Highway 180 Corridor	[9]	**7,608**
21	Dry Creek Basin	NA	**5,570**
22	Gateway	NA	**2,347**
23	Lower Oak Creek	NA	**754**
24	Neighborwoods	NA	**15,151**
25	Red Cliff	NA	**3,979**
26	Redrock Frontcountry	NA	**5,346**
27	Savannah	NA	**39,203**
28	Schnebly Rim	NA	**5,090**
29	Transition	NA	**2,897**
30	NONE	NA	**0**
31	Craters	NA	**29,940**
32	Deadman Wash	NA	**58,133**
33	Doney	NA	**40,530**
34	Flagstaff	NA	**1,781**
35	Lake Mary Watershed	NA	**62,536**
36	Schultz	NA	**21,289**
37	Walnut Canyon	NA	**20,566**
38	West	NA	**36,298**

The following will not be delineated as management areas but will be displayed on the map with an appropriate symbol:

- Administrative sites and electronic sites (58 ACRES)
- Non Forest Service lands and Experimental Forests **(5417 ACRES excludes G.A. Pearson Natural Area)** The changes made on 8/86 reflect changes in boundaries of the Cinder Hills MA and the discovery of an error in the classification of 2,187 acres of suitable timber land in MA13 which should have been in unsuitable. The suitability change only shows in the individual MA listing of acres by land use classification.

[9] Acres are from MA's 3, 5, 6, 7, 9 – as updated in Amendment 10

APPENDIX C
ELECTRONIC SITES

Site Name	Acres	Ranger District (previous name)	Current Types of Use	Authorized Uses	New Permits Accepted	Expansion Permitted
Apache Maid Lookout	2	(Beaver Creek) **Red Rock**	2-Way	Gov't. Agencies	No	No
O'Leary Lookout	2	(Elden) **Peaks**	2-Way, radio	FS, Gov't. Agencies	Yes	No
Devil's Head	10	(Elden) **Peaks**	2-Way, Microwave, CMRS	Open – Low Power	Yes	Yes
Mt. Elden	3	(Elden) **Peaks**	2-Way, TV, Microwave, CMRS	Open – Low Power	Yes	No
TV Ridge	10	(Elden) **Peaks**	2-Way, Microwave, CMRS	Open – Low Power	Yes	Yes
Woody Mtn. Lookout	0.5	(Flagstaff) **Peaks**	2-Way	FS	No	No
East Pocket	0.5	(Flagstaff) **Peaks**	2-Way	FS	No	No
Saddle Mountain	0.5	(Flagstaff) **Peaks**	2-Way, CMRS	Gov't Agencies, CMRS	Yes	Yes
Turkey Butte	0.5	(Flagstaff) **Peaks**	2-Way	FS	No	No
A-1 Mountain	1	(Flagstaff) **Peaks**	**None**	**None**	Yes	Yes
Agassiz (top of ski lift)	0.25	(Flagstaff) **Peaks**	2-Way	Ski Area use only	No	No
Winona	**.5**	**Peaks**	**None (new 2007)**	**CMRS, Microwave**	**Yes**	**No**
Baker Butte	3	(Long Valley) **Mogollon Rim**	2-Way	FS	No	No
Buck Mountain	3	(Long Valley) **Mogollon Rim**	2-Way	FS	No	No
Hutch Mountain	10	(Long Valley) **Mogollon Rim**	2-Way, Microwave	FS	No	No
Five Mile	10	(Long Valley) **Mogollon Rim**	2-Way, Microwave, Radio	Open	Yes	Yes
Mormon Mountain	10	Mormon Lake	Commercial Broadcast, 2-Way, TV, Microwave, CMRS	Open	Yes	Yes
Mormon Lookout	0.5	Mormon Lake	2-Way	FS	No	No
Lee Butte	0.5	Mormon Lake	2-Way	FS	No	No

Site Name	Acres	Ranger District	Current Types of Use	Authorized Uses	New Permits Accepted	Expansion Permitted
Schnebly Hill	5	Mormon Lake	Commercial Broadcast, 2-Way, Microwave, CMRS	2-Way, CMRS, Low Power	Yes	Yes
Sedona Airport Beacon	0.01	(Sedona) **Red Rock**	Radar- Avigational Aid Station	Federal Agencies	No	No
Moqui Lookout	5	(Blue Ridge) **Mogollon Rim**	2-Way	FS	No	No
Snow Bowl Wireless Low Power Site	0.1	Peaks	CMRS	CMRS, Gov't. Agencies, 2-way	Yes	No
House Mountain	1.0	(Sedona) **Red Rock**	2 way	Gov't. agencies, fire dept.	No	No
Ike's Backbone	1.0	(Beaver Creek) **Red Rock**	2 way	Gov't. agencies, APS	No	No
Oak Creek Vista	0.5	(Sedona) **Red Rock**	2 way	Gov't. Agencies, fire dept.	No	No
Rarick Canyon Wireless	0.5	(Beaver Creek) **Red Rock**	**CMRS**	CMRS, Gov't. Agencies	Yes	No
Rocky Park Wireless	0.5	Mormon Lake	**CMRS**	CMRS, Gov't. Agencies	Yes	No
Woods Canyon Wireless	0.5	Mormon Lake	**CMRS**	CMRS, Gov't. Agencies	Yes	No
Douglas Mountain Wireless	0.5	Mormon Lake	**CMRS**	CMRS, Gov't. Agencies	Yes	No
Ritter Mountain Wireless	0.5	Mormon Lake	**CMRS**	CMRS, Gov't. Agencies	Yes	No
James Canyon Wireless	0.5	Mormon Lake	**CMRS**	CMRS, Gov't. Agencies	Yes	No

- CMRS – FCC definition of Commercial Mobile Radio Service.
- This list includes electronic sites that are part of the Forest Service communications network, such as fire lookouts. Refer to the Forest-wide Standards and Guidelines under the Special Uses component for potential restrictions concerning the non-Forest Service use of the sites.

APPENDIX D

LAND SUITABILITY CLASSIFICATION - ACRE DISTRIBUTION BY MANAGEMENT AREA

	Nonforest	Withdrawn PP	Withdrawn PJ	Physically Unsuitable (PJ)	Physically Unsuitable/ Not Capable	Not Approp	Suitable	Total
MA1	59,724	26,056	70,130					155,910
MA2	1,242		1,646					2,888
MA3					228	7,145	503,642	511,015
MA4					32,634	12,249	1,499	46,382
MA5					3,450			3,450
MA6					67,146			67,146
MA7				273,815				273,815
MA8				19,077				19,077
MA9	9,049							9,049
MA10	160,494							160,494
MA11	19,104			150,425				169,529
MA12	9,726				10,764			20,490
MA13	2,865			2,576	3,816		4,454	13,711
MA14	557			3,200	1,274	357		5,388
MA15	874							874
MA16		972						972
MA17	1,331	1,514	1,614					4,459
MA18	1,577							1,577
MA19							12,044	12,044
MA20	340			1,163	289		5,816	7,608
MA21	978			4,592				5,570
MA22	1,172			682			493	2,347
MA23				754				754
MA24	4,031			11,120				15,151
MA25	1,790			2,189				3,979
MA26	2,569			2,777				5,346
MA27	20,232			18,971				39,203
MA28				2,291	1,018		1,781	5,090
MA29	978			1,919				2,897
MA30								0
MA31	7,505			16,656	4,368	12	1,400	29,940
MA32	4,832			44,412	5,438	344	3,106	58,133

APPENDIX D (continued)

LAND SUITABILITY CLASSIFICATION - ACRE DISTRIBUTION BY MANAGEMENT AREA

	Nonforest	**Withdrawn PP**	**Withdrawn PJ**	**Physically Unsuitable (PJ)**	**Physically Unsuitable/ Not Capable**	**Not Approp**	**Suitable**	**Total**
MA33	**8,322**			**14,313**	**4,136**	**85**	**13,673**	**40,530**
MA34	**332**	20[10]			**1**	**55**	**1,373**	**1,781**
MA35	**6,958**	309[11]	94[12]	**2,108**	**8,280**	**40**	**44,746**	**62,536**
MA36	**223**			**1,066**	**8,132**	**72**	**11,796**	**21,289**
MA37	**946**			**4,277**	**6,553**		**8,790**	**20,566**
MA38	**1,920**			**171**	**4,296**	**58**	**29,853**	**36,298**
TOTAL	**325,359**	**29,203**	**74,477**	**611,299**	**142,507**	**13,577**	**640,865**	**1,837,288**

[10] Dorms
[11] Coulter Plots
[12] Coulter Plots

APPENDIX E

SATISFACTORY/UNSATISFACTORY RANGE ACRES

MA NO.	FULL CAPACITY ACRES	LESS THAN SATISFACTORY ACRES	MA TOTAL ACRES
1	77,426	2,710	150,180
2	0	0	2,195
3	**560,900**	46,740	612,901
4	0	0	32,677
5	3,864	**0**	4,112
6	**70,172**	4,628	72,295
7	227,601	29,702	269,849
8	0	0	14,130
9	8,824	947	**10,426**
10	123,435	24,278	151,311
11	159,396	41,602	**303,389**
12	3,159	484	37,969
13	46,427	7,495	122,560
14	0	0	5,633
15	0	0	1,532
16	0	0	838
17	93	NA	4,773
18	0	0	380
19	12,233	758	12,554
Total	**1,293,530**	**159,344**	**1,815,347**

APPENDIX F

TIMBER PRODUCTIVITY CLASSIFICATION

POTENTIAL GROWTH	FOREST LANDS SUITABLE FOR TIMBER PRODUCTION		FOREST LANDS NOT SCHEDULED FOR TIMBER PRODUCTION	
Cubic ft/ac/yr	Acres	Million cubic ft/yr	Acres	Million cubic ft/yr
less than 20	0	0	0	0
20-49	452,134	15.6	13,359	.46
50-84	174,539	**11.7**	0	0
Total	626,673	27.3	13,359	.46

	FOREST LANDS SUITABLE FOR TIMBER PRODUCTION		FOREST LANDS NOT SCHEDULED FOR TIMBER PRODUCTION	
Average Potential Growth	35.50	22.25	0	0
Current Average Net Growth	34.00	21.32	20.0	0.2
Allowable Sale Quantity for Plan Period	30.80	19.30	31.8[12]	42.0

[12]Biological potential for not appropriate timber lands. Volumes are not in the allowable sale quantity

APPENDIX G - FIRST DECADE BUDGET

The budget in FY 1982 dollars is displayed as developed for the Forest Plan. A total budget constraint of $107,730M for the decade was used or an annual average of $10,773M. The budget in the FORPLAN analysis is the aggregate of cost estimates for producing the outputs and meeting the management standards and guidelines specified in the Plan.

The Forest Plan is used as the basis for developing budget proposals. These proposals are developed approximately 20 months prior to the start of the subject fiscal year. This information is used by the Regional Forester and Chief in responding to various budget level alternatives. As the budget proposals move through the Administration (Department of Agriculture and OMB) and Congressional actions, some adjustments are likely. These adjustments are based on many considerations such as National program priorities, Federal budgets, and National economic priorities.

Specific budget proposals are likely to change when the annual allocation of funding is received at the Forest level. However, the Forest Plan will be used to establish priorities at whatever budget level is received for the given fiscal year. It is the intent of the Forest and the Region to adhere to the Forest Plan Standards and Guidelines and to accomplish the balance of resource outputs over the first ten year period of the Plan. Accomplishment of the outputs may be rescheduled within the period depending on available funding and/or other factors.

The constrained budget used for preparing the Forest Plan schedule of outputs and services does not include outside sources of funding, such as donations, contributions, reimbursements, and user fees collected by state agencies and used for National Forest resource improvement (Sikes Act Habitat Improvement). It does include appropriated funds plus deposits which reduce returns to the Treasury such as KV and BD.

Item	Cost Estimate in Average Annual FY 1982 Dollars (All costs in M$ average annual for the decade)
Fire Management	2,035
Timber Management	1,914[13]
Range Management (includes Range Betterment Funds)	512
Minerals Management	67
Recreation & Wilderness Management	718
Cultural Resource Management	169
Wildlife & Fish Management	44113
Soil & Water Management	296[1]
FA&O Operations & Management	230
Lands, including Land Line Location	312
Road Operation and Development	1,293
Trail Construction	19
Road Maintenance	679
Trail Operation & Maintenance	33
Cooperative Law Enforcement	44
Recreation Facility Construction	259
FA&O Facility Construction	53
General Administration, all sources	1,420
Fuels Treatment (Brush Disposal)	238

[13] Does not distinguish between work accomplished with appropriated funds and that done with deposits from timber sales (KV). Those distinctions made in the Forest Plan Implementation Spreadsheets which are a budget tracking document.

Appendix H

Tables moved with Amendment 11 from Text to here

Table 2 - Comparison of Forest Plan Outputs and Region 3 Guide Targets in Average
Annual Units by Resource

RESOURCE		FOREST PLAN	R-3 GUIDE TARGETS
Developed Recreation (MRVD)	Decade		
	1	973	828
	2	1232	973
	3	1450	1050
	4	1601	1180
	5	1749	1305
Dispersed Recreation (MRVD)	Decade		
	1	1388	1540
	2	1796	1575
	3	2111	1645
	4	2415	1715
	5	2702	1785
Grazing Use (MAUM)	Decade		
	1	170	165
	2	174	175
	3	180	184
	4	184	192
	5	185	198

Table 2 - Comparison of Forest Plan Outputs and Region 3 Guide Targets in Average Annual Units by Resource (continued)

RESOURCE		FOREST PLAN	R-3 GUIDE TARGETS
Timber Volume ASQ (MMBF)	Decade		
	1	99	115
	2	100	115
	3	103	115
	4	103	115
	5	102	115

Table 3 lists the 10-year timber offering schedule by fiscal year, District, sale name, approximate acres, and estimated volumes.

Table 3 - 10-Year Timber Offering Schedule - MMBF

FISCAL YEAR	RANGER DISTRICT	SALE NAME	VOLUME MMBF Sawtimber/Roundwood*		
			12”+	9”-12”	5”-9”
1987	Elden	Lost Pulp	0	0.3	0.7
1987	Flagstaff	Sliker**	3.3		
1987	Flagstaff	Big Woody**	4.6		
1987	Flagstaff	Sterling**	13.2	2.5	
1987	Long Valley	Crook**	19.9		
1987	Mormon Lake	Head**	1.7		
1987	Mormon Lake	Thomas** NO BIDS	11.7	1.3	
1987	Mormon Lake	Swinging**	6.4	0.5	
1987	Blue Ridge	Blue Ridge**	3.1		
1987	Blue Ridge	McMud*	12.3		
1987	Blue Ridge	Colorado Plateau Pulpwood Release		0.9	0.5
1987	Blue Ridge	Beeline**	3.3		
1987	All Districts	Small Sales (Includes salvage)	0.5	0.1	
		Total 86.8	80.0	5.6	1.2

*Acres within exterior sale boundary. With Integrated Stand Management (ISM) only a portion of the sale area is harvested as a part of a timber sale.
*Roundwood timber sales generally include timber that is from 5” d.b.h. to 12”d.b.h.
**Sales without full implementation of (ISM). ISM has been incorporated where cost effective. These sales were either previously offered and not purchased, or sold sales affected by Forest Service "buy back" (PL 98-478), or sales designed before ISM direction existed

Table 3 - 10-Year Timber Offering Schedule (continued)

FISCAL YEAR	RANGER DISTRICT	SALE NAME	VOLUME MMBF Sawtimber/Roundwood*		
			12”+	9”-12”	5”-9”
1988	Elden	Little Elden	4.7		
1988	Flagstaff	Cabin Still**	7.5		
1988	Flagstaff	Fernow	11.3	1.0	
1988	Long Valley	Iron Mine	10.8		
1988	Long Valley	Forty-Four	7.3		
1988	Mormon Lake	Jox** NO BIDS	17.2		
1988	Mormon Lake	Perry** NO BIDS	9.6		
1988	Mormon Lake	Thomas Roundwood		0.9	0.9
1988	Blue Ridge	Hay Meadow**	11.4		
1988	Blue Ridge	Holder	7.0		
1988	All Districts	Small Sales (includes salvage)	0.9	0.1	0.1
		Total 90.7	87.8	2.0	1.0
1989	Elden	Pipeline (Roundwood)*	0.5	0.5	0.7
1989	Elden	Jack Smith	2.7		
1989	Elden	Black Pass Roundwood*	1.6	2.0	2.7
1989	Elden	Dry Tank Roundwood*	0.2	0.2	0.8
1989	Flagstaff	Buzzard	17.4		
1989	Elden/ Flagstaff	Small Sales (includes salvage)	0.7	0.8	0.5
1989	Long Valley	West	13.5		
1989	Long Valley	Fuller	6.1		
1989	Long Valley	Happy Roundwood* WITHDRAWN		2.0	1.0
1989	Mormon Lake	Smith	7.7		
1989	Mormon Lake	Newman	7.0		
1989	Mormon Lake	Bristow Roundwood*		0.2	0.5
1989	Mormon Lake	Bones WITHDRAWN			
1989	Blue Ridge	Leonard	7.9		
1989	Blue Ridge	Limestone	6.5		
1989	Blue Ridge	General Springs Roundwood* NO BIDS		1.1	2.1
1989	All Districts	Small Sales (includes salvage)	0.8		
		Total 83.1	71.9	4.0	7.2

*Roundwood timber sales generally include timber that is from 5” d.b.h. to 12”d.b.h.

**Sales without full implementation of (ISM). ISM has been incorporated where cost effective. These sales were either previously offered and not purchased, or sold sales affected by Forest Service "buy back" (PL 98-478), or sales designed before ISM direction existed.

Table 3 - 10-Year Timber Offering Schedule (continued)

FISCAL YEAR	RANGER DISTRICT	SALE NAME	VOLUME MMBF Sawtimber/Roundwood*		
			12”+	9”-12”	5”-9”
1990	Peaks	Dauber	15.5		
1990	Long Valley	Immigrant +	9.2		
1990	Long Valley	D&H	3.2		
1990	Long Valley	Back	3.9		
1990	Long Valley	Aztec	11.5		
1990	Mormon Lake	Antelope	11.2	0.1	
1990	Blue Ridge	Buckhorn	15.0		
1990	Blue Ridge	Hospital	5.8		
1990	All Districts	Misc Small Sales	0.5	0.4	0.3
		Total 76.6	75.8	0.5	0.3
1991	Peaks	Red Hill Multi-product	---	---	---
1991	Peaks	Buckhead	8.9	0.3	
1991	Peaks	Puck Junior	0.4	0.2	0.2
1991	Peaks	Halfmoon Roundwood	0.1	0.1	1.0
1991	Peaks	Misc. Small Sales	0.5		1.0
1991	Long Valley	Anchor	3.7	0.5	
1991	Long Valley	Lake	---	---	---
1991	Long Valley	Dirty-neck Roundwood*	0.7	2.7	
1991	Long Valley	Bray Fire Salvage	0.2		
1991	Mormon Lake	Blowout Roundwood *	0.5	2.0	1.5
1991	Mormon Lake	Walnut	5.5		
1991	Mormon Lake	Cracker Multi-product ++	---	---	---
1991	Mormon Lake	Lake Mary	2.7		
1991	Mormon Lake	Iowa Roundwood	0.5	1.8	1.8
1991	Blue Ridge	Lockwood ++	---	---	---
1991	Blue Ridge	Rim Fire Salvage *	1.0		
1991	Blue Ridge	U-bar	---	---	---
1991	Blue Ridge	General Springs Roundwood +++		1.1	2.1
		Total 81.0	---71---		10

* Roundwood timber sales generally include timber that is from 5” d.b.h. to 12”d.b.h.

+ Immigrant Timber Sale offered in Spetember 1990, then withdrawn because of a cruising error. This sale will be reoffered in October 1990 and will be creadited towards the Fiscal Year 1990 offering amount, even though it will be sold in Fiscal Year 1991.

++ Sales do not have completed environemental assessments, therefore volumes are not shown.

+++ General Springs Roundwood was offered in FY 1989, but there were no bids. Industry has expressed interest in purchasing the sale and it will be refoffered during the Fall of 1990.

Table 3 - 10-Year Timber Offering Schedule (continued)

FISCAL YEAR	RANGER DISTRICT	SALE NAME	VOLUME MMBF Sawtimber/Roundwood*		
			12”+	9”-12”	5”-9”
1992	Peaks	LeBarron	Total Volume for Peaks District 26.5 MMBF		
1992	Peaks	Malpais			
1992	Peaks	Misc Small Sales (			
1992	Long Valley	Long Valley	Total Volume for Long Valley District 12.5 MMBF		
1992	Long Valley	Valley Roundwood*			
1992	Long Valley	Monument			
1992	Long Valley	Strawberry			
1992	Long Valley	Apache Maid			
1992	Mormon Lake	Bar-M Multi-product	Total Volume for Mormon Lake District 23.0 MMBF		
1992	Mormon Lake	Mud Multi-product			
1992	Mormon Lake	Tie Multi-product			
1992	Mormon Lake	Perry Multi-product			
1992	Blue Ridge	Merritt	Total Volume for Blue Ridge District 19.0 MMBF		
1992	Blue Ridge	Cracker Box			
		Total 81	---71---		10
1993	Peaks	Sinks	Total Volume for Peaks District 26.0 MMBF		
1993	Peaks	Kendrick Multi-product			
1993	Peaks	Crowley Multi-product			
1993	Peaks	Misc Small Sales*			
1993	Long Valley	Boondock Multi-product	Total Volume for Long Valley District 15.0 MMBF		
1993	Long Valley	Middle Multi-product			
1993	Long Valley	Hutch			
1993	Long Valley	Jacks Multi-product			
1993	Long Valley	Happy Multi-product			
1993	Mormon Lake	Broliiar Multi-product	Total Volume for Mormon Lake District 25.0 MMBF		
1993	Mormon Lake	Mortgage Multi-product			
1993	Mormon Lake	Mustang Multi-product			
1993	Mormon Lake	Foxborough Multi-product			
1993	Blue Ridge	Barbershop	Total Volume for Blue Ridge District 15.0 MMBF		
		Total 81	---71---		10

* Roundwood timber sales generally include timber that is from 5” d.b.h. to 12”d.b.h.

Table 3 - 10-Year Timber Offering Schedule (continued)

FISCAL YEAR	RANGER DISTRICT	SALE NAME	VOLUME MMBF Sawtimber/Roundwood*		
			12”+	9”-12”	5”-9”
1994	Peaks	Misc Small Sales			
1994	Peaks	Saddle Multi-product			
1994	Peaks	Wing Multi-product			
1994	Peaks	Lava			
1994	Peaks	Hochderffer Multi-product			
1994	Long Valley	Goswick Roundwood			
1994	Long Valley	Spring			
1994	Long Valley	Barg			
1994	Long Valley	Milk Salvage			
1994	Mormon Lake	Little Horse Multi-product			
1994	Mormon Lake	Howard Multi-product			
1994	Mormon Lake	Smith Roundwood			
1994	Mormon Lake	Gash Multi-product			
1994	BlueRidge	Clear Creek			
1994	Blue Ridge	Coyote			
		Total ---- MMBF			
1995	Peaks	Misc Small Sales			
1995	Peaks	A-1 Multi-product			
1995	Peaks	Fernow Roundwood*			
1995	Peaks	Buckhead Roundwood*			
1995	Long Valley	Clover			
1995	Long Valley	Peck			
1995	Long Valley	Hollingshead			
1995	Mormon Lake	T-Six Multi-product			
1995	Mormon Lake	Rocky Multi-product			
1995	Mormon Lake	Nestor Multi-product			
1995	Mormon Lake	Schoolhouse Multi-product			
1995	Blue Ridge	Mesa			
1995	Blue Ridge	Cow			
1995	Blue Ridge	Yellow Jacket			
1995	BlueRidge	Highway 87			
		Total ----			

* Roundwood timber sales generally include timber that is from 5” d.b.h. to 12”d.b.h.

++ Tentative timber sale names are isted without any specific volumes. Total offering volumes will not be listed until the analysis agreed to in the “Coconino Timber Sales: A Closer Look, Forest Plan Implementation Interim Monitoring Report” has progressed.

Table 3 - 10-Year Timber Offering Schedule (continued)

FISCAL YEAR	RANGER DISTRICT	SALE NAME	VOLUME MMBF Sawtimber/Roundwood*		
			12"+	9"-12"	5"-9"
1996	Peaks	Misc Small Sales			
1996	Peaks	White Horse Multi-product			
1996	Peaks	Abineau Roundwood			
1996	Peaks	Fort Valley Multi-product			
1996	Long Valley	Checker Multi-product			
1996	Long Valley	Bottle			
1996	Long Valley	Wildcat			
1996	Mormon Lake	Dandy			
1996	Mormon Lake	Deadwood			
1996	Mormon Lake	Chung Multi-product			
1996	Mormon Lake	Priest Multi-product			
1996	Blue Ridge	Reservoir			
1996	Blue Ridge	Horse			
1996	Blue Ridge	Limestone Roundwood*			
1996	Blue Ridge	Jacks			
		Total ----MMBF			

* Roundwood timber sale generally include timber that is from 5" d.b.h. to 12" d.b.h.
++ Tentative timber sale names are isted without any specific volumes. Total offering volumes will not be listed until the analysis agreed to in the "Coconino Timber Sales: A Closer Look, Forest Plan Implementation Interim Monitoring Report" has progressed.

Table 3 – Summary

FISCAL YEAR	TOTAL MMBF	VOLUME MMBF Sawtimber and Roundwood dbh		
		12”+	9”-12”	5” – 9”
1987	86.8	80.0	5.6	1.2
1988	90.7	87.7	2.0	1.0
1989	83.1	71.9	4.0	7.2
1990	76.7	75.8	0.5	0.3
1991	81	----71----		10
1992	81	----71----		10
1993	81	----71----		10
1994	---			
1995	---			
1996	---			

Table 4 lists the timber suitability land classification for the total net Forest acres.

Table 4 - Timber Suitability Land Classification

Timber Suitability Acres:	
Nonforest	325,945 acres
Forested Land withdrawn	
Ponderosa Pine/Mixed Conifer	28,525 acres
Pinyon-juniper	72,876 acres
Unsuitable (Pinyon-juniper)	593,102 acres
Unsuitable (physically unsuited or not capable)	154,214 acres
Forested Lands not appropriate for timber harvest	13,359 acres
Suitable Timber lands	626,326 acres
Total in Management Areas	1,815,347 acres
Experimental Forest	6,148 acres
Total	1,821,495 acres

Table 5 has been deleted from the Forest Plan. 10-year Landline Location Program can be found at the Supervisor's Office for any interested parties. Pages 33 through 36 are therefore blank.

Table 6 lists the 10-year Rights-of-Way Acquisition Plan by fiscal year, name, miles, function,District, and legal description.

Table 6 - 10-Year Right-of-Way Acquisition Plan

NAME	MILES	DISTRICT	TWNSHP	RANGE	SECTION
Road 132	0.50	Mormon Lake	T20N	R7E	24
Road 151	3.70	Peaks	T23N	R6E	14,22,23,27 ,34
Road 794	0.40	Peaks	T23N	R6E	27
Mt. Elden Road	0.40	Peaks	T22N	R7E	34
Valley Timber Sale	0.60	Long Valley	T14N	R10E	30
Lockett Meadow	0.25	Peaks	T23N	R7E R8E	13 18
Road 795	0.40	Sedona	T18N	R4E	26
Road 525	0.50	Sedona	T18N	R4E	15,22
Barbershop Timber Sale	0.10	Blue Ridge	T13N	R11E	21
Fisher/Campbell Timber Sale	6.70	Peaks	T21N	R8E	17,21,22,26 28,30
Mesa Timber Sale	0.30	Blue Ridge	T14N	R11E	33
Road 126	5.00	Mormon Lake	T20N	R10E R11E	12,13,24,25 26 6,7
Road 126	2.00	Mormon Lake	T19N	R11E	19,30,31
Road 618	0.40	Beaver Creek	T15N	R6E	28
Road 213	0.30	Long Valley	T16N	R8E	10
Road 417	0.40	Peaks	T24N	R8E	19,29,30
Road 514	1.10	Peaks	T24N	R7E	24
Pipeline Trail	0.05	Peaks	T21N	R8E	6

Table 7 lists the schedules for recreation site development in the first decade by priority, site and type of development, and capacity.

Table 7 - Schedule for Recreation Site Development in Decade 1

Priority	**Site And Type Of Development**	**Capacity In Paot**	**FY Completed**
1	Upper Lake Mary Boat Ramp, Parking, Sanitation	50	1990
2	Narrows Picnic Ground (Upper Lake Mary)	100	1990
3	Lower Lake Mary Parking, Sanitation, Access Control	100	1990
4	Bonito Campground Water System Rehabilitation	210	1990
5	Kachina Peaks Wilderness Trailheads—(3)	150 (50 each)	1- 1988
6	Midgely Bridge Vista	48	
7	Oak Creek Complex Reconstruction	180	
8	Little Elden Horse Camp	120	
9	Moqui Group Area	100	Phase 1-1990
10	Crescent Moon Campground	300	
12	Five Mile Picnic Ground	25	
13	Mogollon Rim Campground	250	
14	Snow Bowl Road, Highway 180 Interpretive Facilities	NA	
14	Sinagua Loop Interpretive Sitesd	50	
15	Crook Trail Access Points	100	
16	Knoll Lake Campground Expansion	100	
17	Pine Grove or Bonito Campground Expansion*	100	

*Which campground to be expanded will be determined by use and demand. Pine Grove Campground will not be expanded with appropriated funds if it is still being operated by concessionaire.

In addition, there will be an ongoing program for developed site rehabilitation and individual facility replacement, such as replacement of toilets, tables, or portions of water systems.

Table 8 - 10 Year Trail Construction/Reconstruction Plan

Priority	**Trail**	**Length**	**District**	**FY Completed**
1	Dry Lake Hills-Mt. Elden-Buffalo Park System	35 mi	Elden	27 miles – 1989
2	Trail around Bull Pen Ranch private land	2 mi	Beaver Creek	
3	Kachina Peaks peripheral trail	16 mi	Elden & Flagstaff	5 miles – 1990
4	Jacks Canyon-Horse Mesa Loop	8 mi	Sedona	4 miles – 1990
5	Reconstruct Winter Cabin Trail	5 mi	Flagstaff	
6	Reconstruct trail up bottom of Sycamore Canyon	10 mi	Sedona	
7	Trail along rim from Committee Tank to Coyote Pup Tank	10 mi	Mormon Lake & Sedona	
8	Milk Ranch Point	5 mi	Long Valley	
9	Arizona Trail	60 mi	Blue Ridge/ Mormon Lake	% miles - 1990
10	Broken Arrow	2 mi	Sedona	
11	Soldier's Pass	1 mi	Sedona	

Table 9 – 10-Year Arterial and Collector Road Reconstruction-Capital Investment

Priority	Name	Road No.	Miles	FY Completed
1	Snow Bowl	516	6.2	1989
2	Weimer Springs-Lower Lake Mary So.	132	3.5	
3	Red Canyon	525	1.6	
3	Cinder Hills Access	414 & 776	5.0	
4	Schnebly	153	12.5	
5	Schultz Pass	420	3.0	
6	Marshall Lake	128.2	2.8	1990
7	Beaver Creek	618	4.0	
8	Lee Butte	127	0.5	
9	Pine Hill	125.2	6.4	
10	Long Lake South	82	7.5	
11	Winona to 82E	82	13.5	
12	Lockett Meadow	552B	5.0	1990
13	125 to Kinnikinick	82	3.9	
14	Camp Verde/Strawberry	708	8.5	
15	Mooney Mountain	530	8.5	
16	Woody Mountain	231.4	3.0	
		Total	95.4	

Table 10 - 10-Year Arterial and Collector Road Upgrade Reconstruction-Purchaser Credit

FY	Ranger District	Timber Sale*	Road Name	Road No.	Miles+
87	Peaks	Sterling	Fry Park	535	5.6
			Barney Pasture	231	2.5
				536A	1.9
			Harding Pt.	535A	2.3
	Peaks	Sliker	Mooney Mountain	530	1.5
				526	2.2
	Blue Ridge	McMud	McClure Lake	136	1.9
				211	5.1
88	Peaks	Fernow	Barney Pasture	231	1.3
				538	3.9
				539	3.3
	Long Valley	Iron Mine	Clover Points	122C	0.3
	Blue Ridge	Holder	Macks Crossing	137	2.0
89	Peaks	Buzzard	Barney Pasture	231	5.9
	Long Valley	Fuller	Blazed Ridge	141	8.0
		West	Toms Creek	142	0.7
	Mormon Lake	Newman	Ward Camp	236	4.6
			Allen Lake Landing	700	9.0
			Kelly Interchange	703	0.4
			Howard Mtn	236a	1.9
	Blue Ridge	Leonard	Rim Road	300	4.7
			Knolls Ridge	295E	1.5
90	Peaks	Dauber			
	Long Valley	Aztec	Harris Park	81	1.0
			Maxwell Trail	81E	5.1
		Back	Jackson Park	230	4.1
	Mormon Lake	Antelope	Allen Lake Landing	700	0.6
			Howard Mtn.	236A	3.3
	Blue Ridge	Buckhorn	E. Leonard Pt	137B	1.7
91	Peaks	Red Hill	Secret Mountain	538	4.5
			Barney Pasture	231	5.0
			Everett Tank	527	1.5
		Puck Junior			
		Halfmoon R/W			
		Buckhead	Barney Pasture	231	7.0
			South Pocket	539	6.0

* Timber sale names may change and then Plan amendments are required.
+ Timber Sale without finalized environmental assessments do nothave mileage listed. As the EA's are completed this table will be updated. The road names and numbers listed are potential locations for reconstruction activities, likely not all roads will be needed for the removal of timber.

Table 10 - 10-Year Arterial and Collector Road Upgrade Reconstruction-Purchaser Credit continued

FY	Ranger District	Timber Sale*	Road Name	Road No.	Miles+
91	Mormon Lake	Blowout			
		Walnut	Marshall Lake	128	0.1
		Lake Mary	Newman	132 D	7.0
		Cracker	Long Park	91	3.5
			Dutch Oven	219	3.0
		Iowa Rndwd			
	Long Valley	Lake	Gash Mountain	765	
			Stoneman Lake	213	
		Dirty Neck	Horse Ridge	612	
			Potato Lake	147	
			Long Valley W.C.	147A	
92	Peaks	LeBarron	Barney Pasture	231	
			Sliker Hill	526	
		Malpais	Bellmont	171	
			Antelope Hill	245	
	Mormon Lake	Bar M	T-six	226	
			Lee Butte	127	
		Tie	Long Park	91	
		Mud	Allen Lake Landing	700	
		Perry	Weimer Springs	132	
	Long Valley	Long Valley	Blazed Ridge	141	
		Valley	Turkey Mtn	93	
			Turkey South	697	
		Monument	Jackson Park	230	
		Strawberry	No A&C		
		Apache Maid	Apache Maid	229	
			Jackson Park	230	
	Blue Ridge	Merritt	Blue Ridge	139	
		Crackerbox	Hi Fuller	231	
			Miller Canyon	141H	
93	Peaks	Crowley	Cowley Park	193	
			Antelope Hill	245	
			Bellmont	171	
		Sinks	Fry Park Cutoff	536	
			Fry Park	535	
		Kendrick	Cabin Flat	191C	
	Mormon Lake	Brolliar	Lee Butte	127	
			Long Park	91	
		Mortgage	Oak Creek Cutoff	237	
			Blowout	253	

* Timber sale names may change and then Plan amendments are required.
+ Timber Sale without finalized environmental assessments do nothave mileage listed. As the EA's are completed this table will be updated. The road names and numbers listed are potential locations for reconstruction activities, likely not all roads will be needed for the removal of timber.

Table 10 - 10-Year Arterial and Collector Road Upgrade Reconstruction-Purchaser Credit continued

FY	Ranger District	Timber Sale*	Road Name	Road No.	Miles+
93	Mormon Lake	Mustang	Weimer Springs	132	
			Newman	132D	
		Foxborough	Schnebley Hill	153	
	Long Valley	Boondock	Cowhill	124	
			Sawmill Spring	124H	
		Middle	Hicks-Duncan	149	
			Windfall Spring	613	
			Rim	300	
		Hutch	Gooseberry	92	
			Mahan	135	
		Jacks	Jackson Park	230	
			Happy Jack	305	
			Happy	294	
	Blue Ridge	Barbershop	Clear Creek	95	
94	Peaks	Saddle	Kendrick Park	514	
			Saddle Mtn	550	
		Wing	Hart Prairie	151	
		Lava	Bellmont	171	
			Antelope Hill	245	
		Hochderffer	Hart Prairie	151	
	Long Valley	Spring	Bar D Ranch	83A	
			Sawmill Spring	124H	
		Barg	294		
	Mormon Lake	Little Horse	Mud Springs	132A	
			Horse Park	133	
			Casner Park	240	
			Allen Lake Landing	700	
		Howard	Weimer Spring	132	
			Newman	132D	
			Heckethorn	235	
			Ward Camp	236	
		Gash	Long Park	91	
			Lee Butte	127	
	Blue Ridge	Clear Creek	Blazed Ridge	141	
		Coyote	McClintock	145	
95	Peaks	A-1	East Wing Mtn	519	
			Riordan	518	
	Long Valley	Clover	Clover Points	122C	
		Peck	McClure Lake	136	
			Clear Creek Pines	136B	
			Lost Eden	211	

* Timber sale names may change and then Plan amendments are required.
+ Timber Sale without finalized environmental assessments do nothave mileage listed. As the EA's are completed this table will be updated. The road names and numbers listed are potential locations for reconstruction activities, likely not all roads will be needed for the removal of timber.

Table 10 - 10-Year Arterial and Collector Road Upgrade Reconstruction-Purchaser Credit continued

FY	Ranger District	Timber Sale*	Road Name	Road No.	Miles+
		Hollingshead	Harris Park	81	
	Mormon Lake	T-Six	Lee Butte	127	
			Casner Park	240	
			T-Six	226	
		Nestor	Long Park	91	
			Mud Springs	132A	
			Casner Park	240	
			Allen Park Landing	700	
		Schoolhouse	Schoolhouse	762	
			867		
	Blue Ridge	Cow	Cowhill	124	
			Sawmill Spring	124H	
		Yellowjacket	Lost Eden	211	
		Highway87	Mack's Crossing	137	
96	Peaks	Whitehorse	Hostetter	418	
			Kendrick Park	514	
		Fort Valley	Friedlein Prairie	522	
	Long Valley	Checker	Maxwell Trail Road	81E	
		Bottle	Harris Park	81	
		Wildcat	Tom's Creek	142	
			Hicks/Duncan	149	
			Cutoff	604	
	Mormon Lake	Dandy	Iowa Camp	124C	
			Pine Hill	125	
		Deadwood	Blowout	253	
			Crazy Park Loop	253B	
		Chung	Marshall Lake	128	
			Cherry	128C	
		Priest	Allen Lake Landing	700	
			Schoolhouse	762	
	Blue Ridge	Reservoir	Blue Ridge	751	
			Moqui Lookout	751B	
		Horse	Clear Creek Crossing	95	
			Moqui	513	
			Horse Crossing	513B	

* Timber sale names may change and then Plan amendments are required.
+ Timber Sale without finalized environmental assessments do nothave mileage listed. As the EA's are completed this table will be updated. The road names and numbers listed are potential locations for reconstruction activities, likely not all roads will be needed for the removal of timber.

Table 11 lists the 10-year campground and developed recreation roads-capital investment program by priority, name, road number, and miles. It is separated into reconstruction and new construction segments. Priorities are approximate and tentative. New construction roads are associated with new or expanded developed recreation sties and must be funded in coordination with the recreation sites. In addition there is an ongoing program for reconstruction of camp and picnic ground parking spurs included within the constrained budget.

Table 11 - 10-Year Campground and Developed Recreation Roads-Capital Investment

RECONSTRUCTION PRIORITY	NAME	ROAD NO.	MILES
1	Oak Creek Vista	989D	0.3
2	Pine Flat	989E & 89	0.9
3	Rock Crossing	751A	0.3
4	Bonito	545F	0.8
5	Manzanita	89G	0.5
6	Cave Springs	89D	0.3
7	Grasshopper	640	0.1
8	Bootlegger	89H	0.1
9	Banjo Bill	89F	0.1
10	Chavez	623	0.1
11	Halfway	89E	0.1
12	Encinoso	89I	0.1
13	Clear Creek CG	626	0.8
		Total	4.5

Table 11a - 10-Year Campground and Developed Recreation Roads-Capital Investment, New Construction

Priority	Name	Road No.	Miles	Fy Completed
1	Upper Lake Mary	753	0.2	1990
2	Narrows	3B	0.5	1990
3	Lower Lake Mary	3A	0.2	1990
4	Kachina Peaks Trailheads		0.3	1988
				1990
5	Little Elden Horse Camp		0.3	
6	Crescent Moon	788A	2.2	
7	Five-mile Picnic Ground		0.1	
8	Blue Ridge Res. Boat Ramp	*	0.2	1990
9	Mogollon Rim CG	*	1.0	
11	Sinagua Loop Parking			
12	Crook Trail Access	*	0.2	
13	Knoll Lake CG Expansion	*	0.5	
14	Pine Grove Campground Expansion	*	0.5	
		Total	6.4	

* No road numbers assigned at this time.

Table 12 – Region 3 Standaard Vegetation Treatement Table
Standard Vegetative Management Practices for Certain Composition, Structure, and Fucntion Attributes (use at the site/stand level).

COMPOSITION (Forest Type*)	Aspen and Western Live Oak	Englemann Spruce-Subalpine Fir, White Fir, Blue Spruce, Limber Pine, Rocky Mountain Juniper, Cottonwood-willow, Interior Ponderosa Pine, Piñon-Juniper, Arizona Cypress, and Mesquite							All Forest Types	Grassland, Meadow, and Alpine
STRUCTURE	DESIRED ONE-AGED, SINGLE-STORIED STAND (One-age class comprises >= 90% of total stand BA for most of the rotation. Age difference between oldest and youngest tree in a class is less than 20% of the rotation)				DESIRED TWO-AGED, TWO-STORIED STAND (Two age classes, each > 10% BA most of rotation)	DESIRED UNEVEN-AGED, MULTI-STORIED STAND (More than two age classes)			ANY DESIRED ONE-, TWO-, OR MULTI-STORIED STAND	OPEN
FUNCTION	Coppice Regeneration Method (vegetative regeneration function)	Clearcutting Regeneration Method (no trees function for seed/shelter)	Seed tree Regeneration Method (some trees fucntion for seed only)	Shelterwood regeneration Method (some trees function for seed/shelter)	Irregular Shelterwood Method (function for continuous tree cover)	Single-Tree Selection Regeneration Method (function for continuous tree cover)	Group Selection Regeneration Method (group size <= 2 to 4 acres)	Irregular Group Shelterwood Regeneration Method Method	Intermediate Treatement Methods (tree cover betwween stand formation and regeneration	No or Few Trees
VEGETATIVE MANAGEMENT PRACTICE	**<u>Activity</u>** Coppice Coppice w/reserves	**<u>Activity</u>** <= 5% cover post harvest: Patch cut Strip cut Stand cut 6-10% tree cover post harvest: Patch cut W/Reserves Strip cut W/Reserves Stand cut W/Reserves	**<u>Activity</u>** Preparatory Seed 1-10% tree cover post harvest: Final Removal Final Removal W/Reserves	**<u>Activity</u>** Preparatory Seed Group Seed Strip Seed Removal Group Removal Strip Removal Final Removal Final Removal W/Reserves	**<u>Activity</u>** Preparatory Seed Removal Final Removal Final Removal W/Reserves Copice Regeneration Method <u>Coppice W/Standards (understory must regenerate vegetatively, suckers/sprouts)</u>	**<u>Activity</u>** Single Tree/(Indivudal Tree) Selection	**<u>Activity</u>** Group Selection Group Selection W/Reserves	**<u>Activity</u>** Seed Removal Final Removal Final Removal W/Reserves	**<u>Activity</u>** Improvement Liberation Thinning Commercial &Noncommercial Mortality Slavage Sanitation Salvage Cull Salvage Prescribed Fire Cleaning Weeding	**<u>Activity</u>** Meadow Maintenance & Creation

*Eyre, F.H. 1980 Forest cover types of the United States and Canada. Society of American Foresters, Washington, D.C. 148P.

Appendix I

Trailhead List - refer to Map 6 form the Sedona Amendment #12 for additional information

Map #	Hub Trailheads[††††]	Existing [‡‡‡‡]	Planning Complete[§§§§]
1	Dry Creek	N	Y
2	Bell Rock Pathway	Y	Y
3	Black Tank	N	Y
4	Cultural Park (other ownership)	N	N/A[*****]
5	Jim Thompson	Y	Y
6	Little Horse	Y	Y
7	Midgley Bridge	Y	N
8	Red Rock State Park (other ownership)	Y	N/A
9	Schnebly Hill	Y	Y
10	White Flat (Deer Pass Ranch Road)	N	Y
Map #	**Secondary Trailheads[†††††]**	**Existing**	**Planning Complete**
11	Boynton Canyon	Y	Y
12	Call O' The Canyon	Y	Y
13	Honanki	Y	Y
14	Jacks Canyon	Y	Y
15	Red Canyon Ranch/Palatki	Y	Y
16	Slide Rock State Park (other ownership)	Y	N/A
17	Woods Canyon	N	Y
18	A. B. Young (Bootlegger)	N	Y
19	Overlook Point	Y	Y
20	Brins Mesa	Y	Y
21	Broken Arrow	Y	Y
22	Carroll Canyon (Shelby Drive)	N	Y
23	Casner Mountain North (Peaks Ranger District)	Y	N
24	Casner Mountain South (Sedona Ranger District)	N	N
25	Cathedral Saddle (Back O'Beyond)	Y	Y
26	Chapel of the Holy Cross	N	N
27	Cookstove	Y	Y
28	Crescent Moon	Y	Y
29	Devils Bridge	Y	Y

[††††] **Hub Trailheads** - Primary connections to the entire trail system and/or heavily used trails. Accommodate a variety of trail users and centralize Forest access away from sensitive areas. High level of development including car and trailer parking, toilets, bike racks, and shuttle stop, and most accommodate equestrians.

[‡‡‡‡] **Existing Trailheads** - These trailheads currently exist. Some may need reconstruction or improvements such as expanded parking, sanitation, and signs, depending on the type of trailhead.

[§§§§] **Planning Complete** - A "Y" indicates that planning for improvements or construction of these trailheads is complete. Public scoping is complete and no unusual situations exist. Cultural and biological clearances and site-specific design are still required prior to construction. An "N" means that additional planning is needed before a decision can be made. Additional planning would deal with such issues as public concerns, sensitive species and soils, cultural resource impacts, or additional coordination.

[*****] **N/A** - Not under National Forest jurisdiction.

[†††††] **Secondary Trailheads** - Provide access to popular trails. Most include parking for 10-20 cars and trail information. Some have toilets and shuttle stops.

=

Map #	Secondary Trailheads Continued	Existing*	Planning Complete**
30	Doe Mountain/Bear Mountain	Y	Y
31	Fay Canyon	Y	Y
32	Schnebly Hill Vista	Y	Y
33	Grasshopper Point	Y	Y
34	Harding Springs	N	Y
35	Lime Kiln (Lower Red Rock Loop Rd. to Dead Horse State Park)	N	Y
36	Old Loy Canyon	Y	N
37	New Loy Canyon	N	Y
38	Margs	Y	Y
39	North Wilson (Encinoso Picnic Area)	Y	Y
40	Lizard Head	Y	N
41	Oak Creek Vista	Y	Y
42	Palatkwapi (I-17 & Stoneman Lake Rd.)	N	N
43	Pinon Hills	N	Y
44	Red Rock Crossing	Y	Y
45	Thunder Mountain	N	N
46	Red Rock Loop	Y	Y
47	Scheurman Mountain (other ownership)	Y	N/A
48	Secret Canyon	Y	Y
49	Secret Mountain Saddle (Peaks Ranger District)	Y	N
50	Soldier's Pass	Y	Y
51	Sterling Pass (Manzanita Campground)	N	Y
52	Sugar Loaf (other ownership)	Y	N/A
53	Turkey Creek	N	N
54	Vultee Arch	Y	Y
55	Long Canyon	Y	Y
56	Sycamore Pass	Y	Y
57	Telephone	N	N
58	Thompson Ladder	N	N
59	Palatkwapi West (Hwy. 179)	N	N
60	Bell Rock North	Y	N
61	Bell Rock Vista	Y	Y
62	The Cliffs (other ownership)	N	N/A
63	Capital Butte	N	N
64	West Fork (Peaks Ranger District)	Y	N
65	Posse Grounds (other ownership)	Y	N/A
66	Tree Farm	N	N

Map #	Neighborhood Links[‡‡‡‡‡]	Existing	Planning Complete
67	Foothills North (other ownership)	N	N/A
68	Elmerville	N	N
69	Jacks Canyon Trail Connection	Y	Y
70	Mystic Hills (other ownership)	N	N/A
71	Pine Knolls (other ownership)	Y	N/A
72	Mystic Trail Connection	Y	Y
73	Pump Station (other ownership)	N	N/A
74	Soldier Wash	N	N
75	Dove Wing Drive (other ownership)	Y	N/A
76	North Slopes (other ownership)	N	N/A
77	Foothills South (other ownership)	N	N/A
78	Natural Gas West	Y	Y
79	Kline Drive (other ownership)	N	N/A
80	Northern Shadows (other ownership)	Y	N/A
81	Anasazi (other ownership)	Y	N/A
82	Brewer Road	N	N
83	Chimney Rock (other ownership)	N	N/A

‡‡‡‡‡ **Neighborhood Links** - Provide trail access in local neighborhoods to connect to the rest of the trail system. Minimal to no development. May have basic trail information.

Appendix J

Forest Service Road Maintenance Objectives

FOREST SERVICE ROAD #	LENGTH (MILES)	MAINTENANCE OBJECTIVE
153	.3	4
216A	4.5	4
120	6.7	3
152C	6.6	3
153	5.9	3
216A	1.7	3
525	7.6	3
525A	3.8	3
525C	6.4	3
525D	1.3	3
761	13	3
795	4.8	3
9457R	1.0	**1**
9459M	1.5	**1****
9459P	1.0	**1****
9460C	.5	**1****
9460D	**.3**	**1****
9469R	1.3	**1****
9494G	.4	**1****
9497F	.45	2
9499B	.4	**1****
9500A	.7	2
9500M	.1	2
9524F	**.4**	2
9524H	**2.1**	2
9528	**1.0**	2
9549C	**.3**	2 (from 525 to Nolan Tank)
9586	4.3	2
9600	.2	2
9600A	.2	2
9840	.7	2
9844K	.2	2
9845K	.2	2
9860	.2	2
9904B	**.3**	**2**
9925	.2	2
9926	.2	2

FOREST SERVICE ROAD #	LENGTH (MILES)	MAINTENANCE OBJECTIVE
9926A	.1	2
9954	.1	2
9457P	**.3**	1
9457Q	.1	1
9458Y	.3	1
9459G	1.2	1**
9459H	.3	1
9459L	.5	1
9459N	.5	1
9459U	.3	1
9460U	.2	1
9469T	.4	1
9497D	.4	1
9501	**.3**	1
9500 P	.2	1
9500R	.2	1
9500S	.3	1
9513B	.2	1
9513C	.8	1
9513F	1.3	1
9513H	.3	1
9524F	.1	1
9527A	.3	1
9528	.6	1
9528A	.2	1
9528B	.2	1
9544A	.4	1
9544B	.5	1
9544C	.4	1
9544F	.1	1
9544G	.1	1
9544J	.1	1
9544K	.1	1
9544L	.1	1
9544M	.2	1
9545	.6	1
9546A	.2	1
9547	.7	1

FOREST SERVICE ROAD #	LENGTH (MILES)	MAINTENANCE OBJECTIVE
9548B	.9	1
9549C	.2	1 (past Nolan Tank)
9549D	.4	1
9551A	.1	1
9556	.6	1
9561	.7	1
9568	.4	1
9570A	.7	1
9571B	.4	1
9573A	.2	1
9573B	.1	1
9573J	.3	1
9577	.3	1
9581	.3	1
9586B	2.7	1
9586C	.3	1
9586D	.5	1
9586G	.3	1
9586H	1.6	1
9598A	.1	1
9598C	.2	1
9801	1.3	1
9801B	.2	1
9839	.9	1
9842	.2	1
9844B	.3	1
9844D	.1	1
9844H	.1	1
9844J	.1	1
9845C	.2	1
9846	.6	1
9846A	.1	1
9846B	1.1	1
9849A	.1	1
9849B	.1	1
9860	1.2	1
9860A	.5	1
9860B	.4	1
9861	.6	1

FOREST SERVICE ROAD #	LENGTH (MILES)	MAINTENANCE OBJECTIVE
9864	.1	1
9864A	.1	1
9870	.1	1
9870B	.1	1
9870C	.1	1
9874	.3	1
9874A	.2	1
9874B	.4	1
9876	.1	1
9886	1.0	1
9893	.3	1
9894A	.1	1
9905C	.1	1
9919	.4	1
9932	.1	1

Forest Service Road Maintenance Objectives

***Maintenance Levels**
Level 1 roads are closed roads, either natural obliteration or mechanical obliteration.

Level 2 roads are generally high-profile-vehicle roads maintained at a lower level than considered safe for passenger cars.

Level 3 roads are maintained at levels considered safe for all vehicles. These are unpaved roads and are considered fair-weather roads and may be seasonally closed.

Level 4 roads are all-weather roads and may be gravel or paved. These are considered safe for all types of vehicles.

****Close to public motor vehicle use, but maintain as a roadway for administrative purposes.**

APPENDIX K

Monitoring Items
(in addition to already existing Forest Plan direction)

Plants, Wildlife, Soil, Air and Water

1. Conduct implementation and effectiveness monitoring of Best Management Practices (BMPs) to determine which BMPs are effective in meeting water quality standards, which BMPs are in need of revision or improvement, and whether or not there is a need for additional BMPs.

2. Conduct implementation and effectiveness monitoring of the effects from recreational activities on soil, water, riparian and plant resources.

3. Establish a program to monitor changes to the most critical ecosystem elements.

4. For the southwestern willow flycatcher:

   - conduct site visits to identify suitable and potential habitat;
   - inventory suitable habitat to locate nesting flycatchers;
   - monitor sites currently and previously occupied;
   - maintain and enhance suitable and occupied habitat;
   - ensure that potential habitat progresses toward suitable Habitat; and
   - minimize disturbance to nesting birds.

5. Compile, map in GIS and file in an electronic corporate database information obtained from threatened, endangered or sensitive species site visits, inventory and monitoring efforts.

6. Coordinate with the USFWS, AG&FD and any other agency or organization involved in ongoing research to determine monitoring needs for occupied southwestern willow flycatcher sites. Information needs and site-specific considerations are important to determine the monitoring intensity/frequency and implementation strategy for monitoring occupied sites.

7. Occupied and suitable habitats should be inventoried annually to determine the presence of southwestern willow flycatchers. If inventory does not occur, the guidelines for occupied habitat apply. Site visits to potential habitat should be conducted every few years in order to document the area's progression toward suitable habitat characteristics.

Prehistoric and Historic Archaeology

1. Monitor long-term trends associated with human occupation changes, employing such methods as photographic transects.

Recreation

1. Monitor established vegetation transects in critical areas of the Sedona/Oak Creek landscape to determine the need for changes in management, such as area closure, rehabilitation, visitor information, or facility redesign or development. Continue to monitor permanent vegetation transects established at Bell Rock, the West Fork of Oak Creek, Boynton Canyon, Sycamore Pass, Long Canyon, Gun Range, Sedona's northern urban interface and Honanki.

2. Monitor to ensure that obliterated trails and roads/tracks are not re-established.

3. Monitor visitor satisfaction at developed and dispersed recreation sites to determine the need for adjusting amounts and types of recreation services.

4. Develop Limits of Acceptable Change (LAC) for the Sedona/Oak Creek landscape that consider both environmental and social ecosystem components and values. Use these limits as objectives to measure changes in recreation settings and the Recreation Opportunity Spectrum Objectives.

5. Monitor trends in Wilderness use that are important for managers to know, such as demographic information and monitoring of resource conditions.

6. Develop Limits of Acceptable Change for Wilderness resource conditions, especially for the West Fork of Oak Creek, Vultee Arch, Boynton Canyon, Fay Canyon, Devils Bridge, Brins Mesa, Soldier's Pass, Secret Canyon, Steamboat Rock, Sedona North Wilderness/Urban Interface (Chimney Rock), Loy Canyon, Casner Mountain, Bell Rock, Mooney Canyon and Robber's Roost. LACs should be specified in the Wilderness Implementation Schedules. Use the Limits of Acceptable Change (LAC) concept for establishing objectives and standards, as outlined in FSM 2320.

7. Measure changes in Wilderness Opportunity Spectrum (WOS) classes and amend the WOS maps, if necessary.

8. Monitor high-use recreation areas for impacts on threatened, endangered, and sensitive species and their habitat, especially neotropical migratory birds. Take appropriate actions to minimize impacts, such as seasonal closures, area closures, signs, and interpretation.

9. Monitor water quality at Mormon Crossing and selected sites in the Lower Oak Creek MA.

10. Monitor levels and locations of dispersed activity that may increase over current amounts due to closures of dispersed camping.

11. Monitor human use in West Fork of Oak Creek including length of stay, numbers of visitors, travel routes, time of visit, and party size.

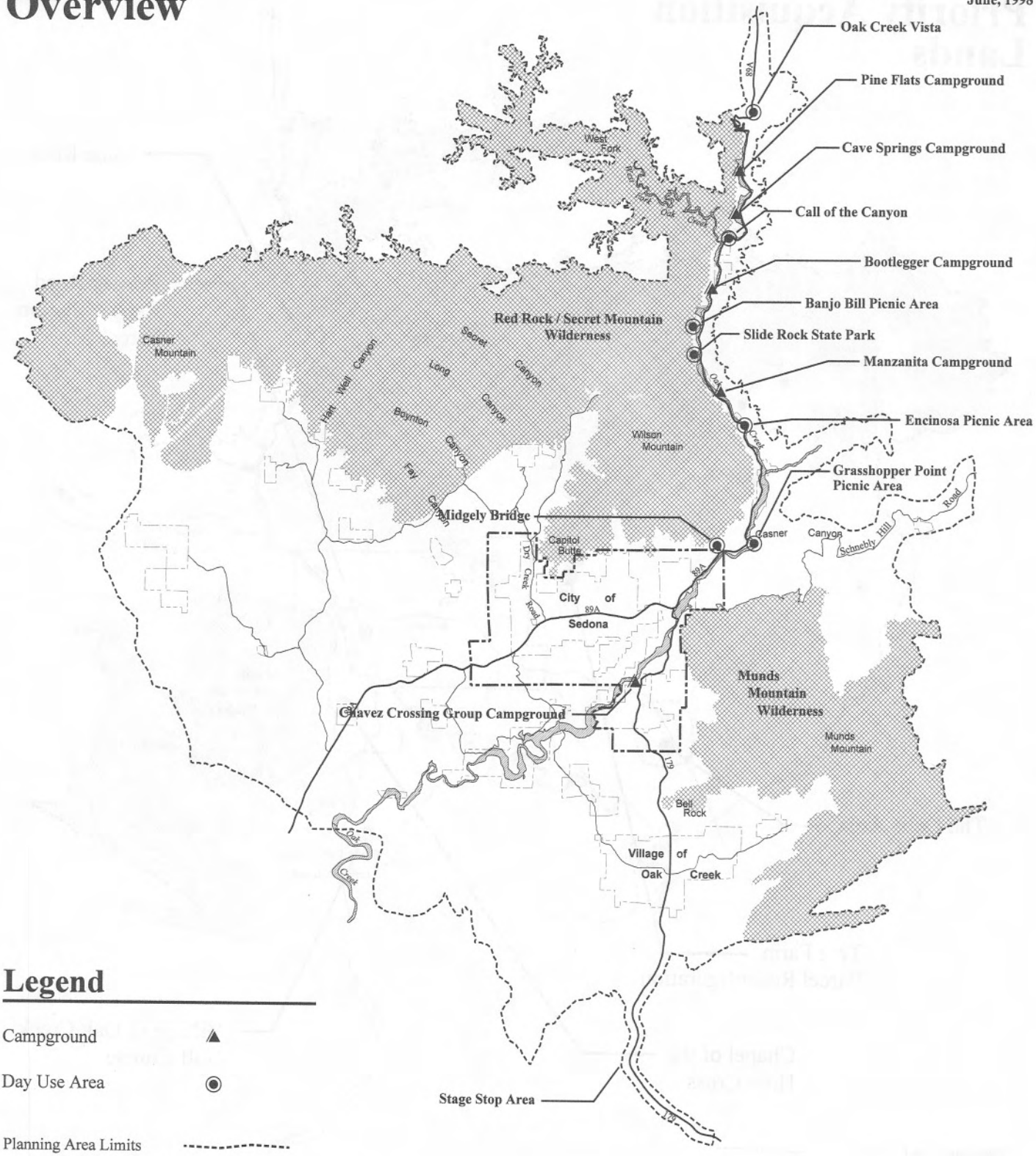
APPENDIX L

Sedona/Oak Creek Amendment 12 Maps

Map 1

Planning Area Overview

Decision Notice and Finding of No Significant Impact
For an Amendment to the Forest Plan for the Sedona Area - Amendment 12
Coconino National Forest, Sedona Ranger District
June, 1998



Legend

Campground ▲

Day Use Area ◉

Planning Area Limits

Sedona City Boundary

National Forest Boundary

Major Highway

Local Road

Oak Creek

Wilderness

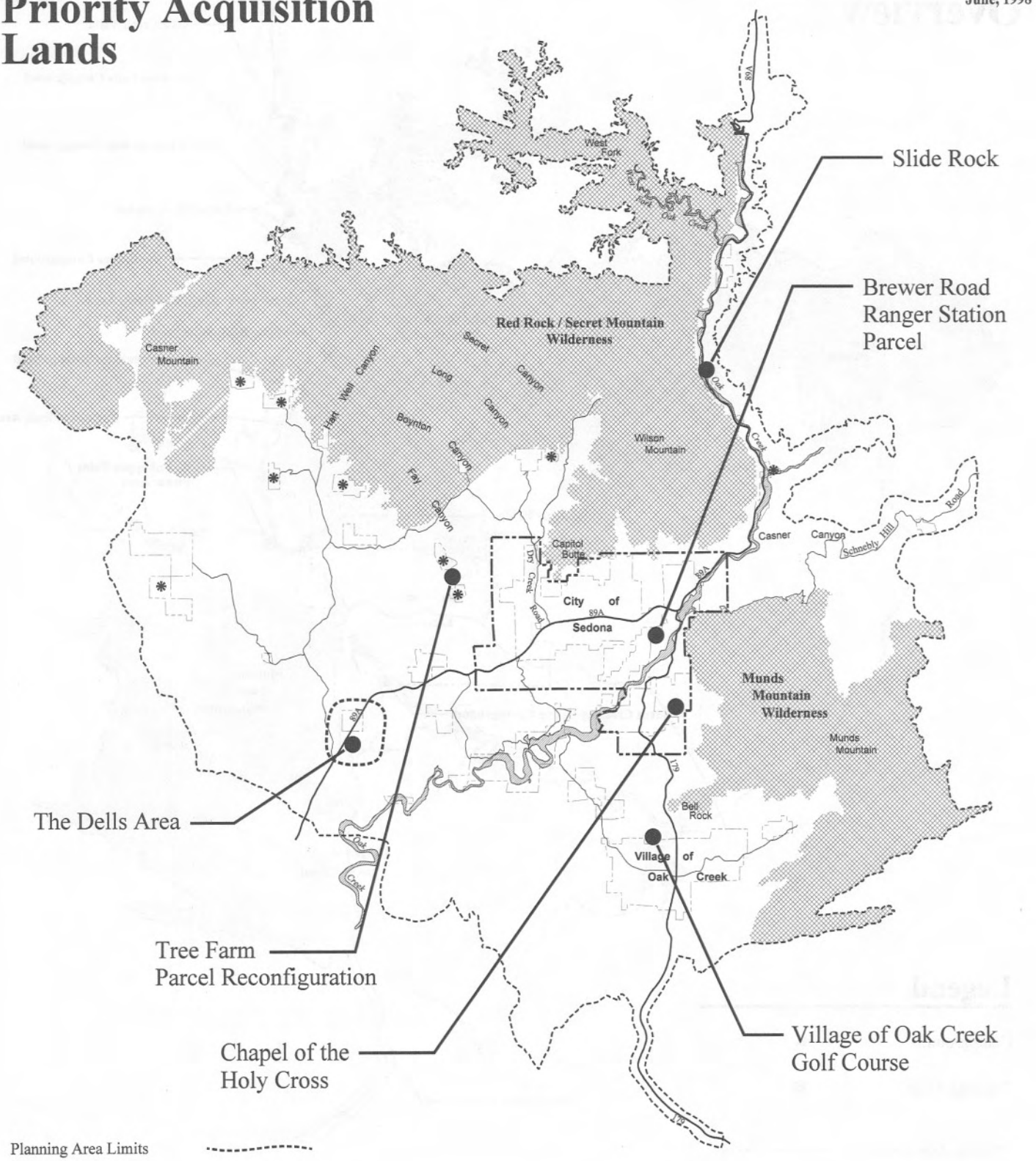
Scale in Miles: 0 1 2 3 4 5

NORTH

Map 2

Base-for-Exchange/ Priority Acquisition Lands

Decision Notice and Finding of No Significant Impact
For an Amendment to the Forest Plan for the Sedona Area - Amendment 12
Coconino National Forest, Sedona Ranger District
June, 1998



Planning Area Limits

Sedona City Boundary

National Forest Boundary

Major Highway

Local Road

Oak Creek

Wilderness

Base-For-Exchange parcels

Private parcels desireable to add to the National Forest system.

Please refer to text for more information.

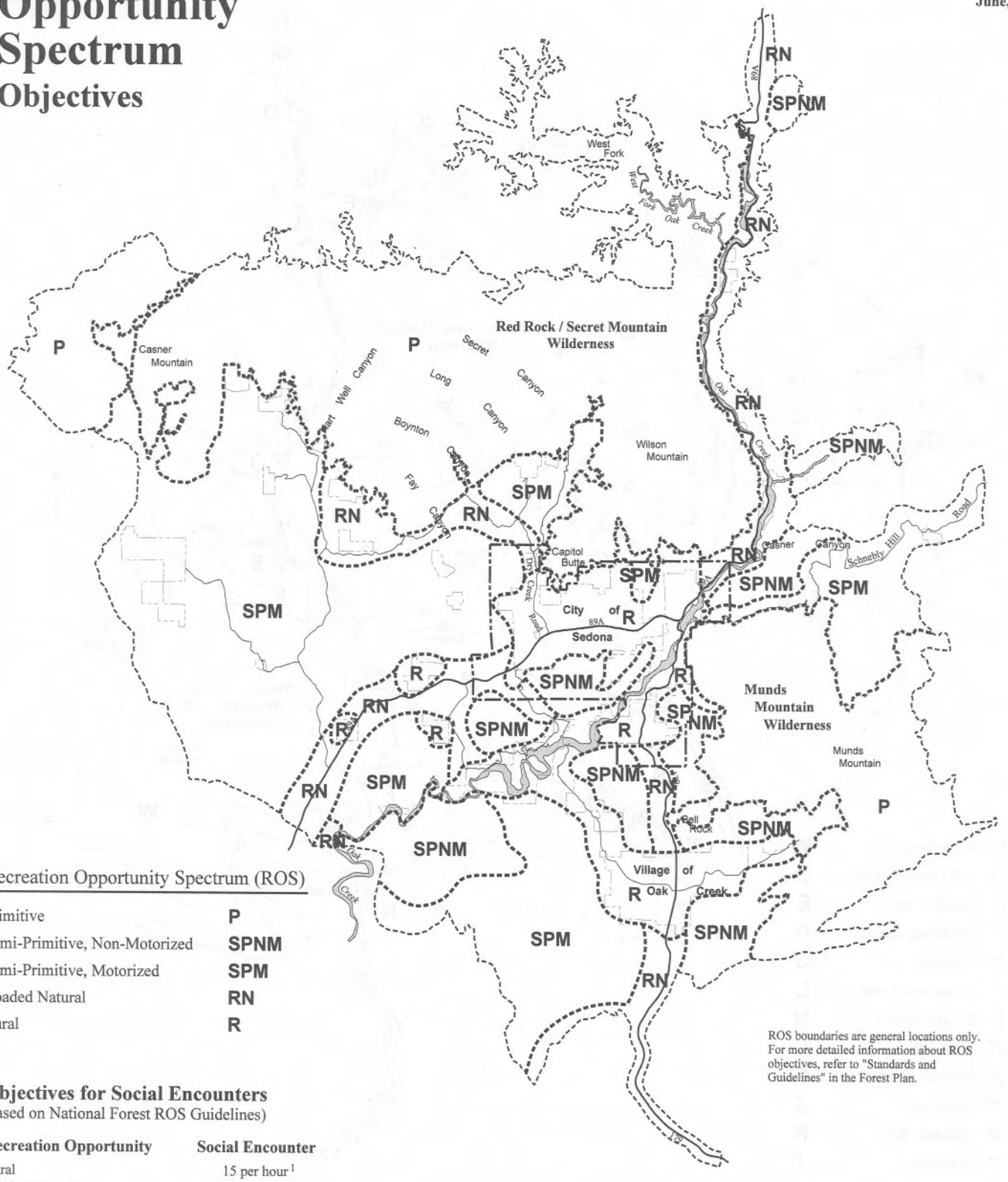
Scale in Miles: 0 1 2 3 4 5

NORTH

Map 3

Recreation Opportunity Spectrum

Objectives



Recreation Opportunity Spectrum (ROS)

Primitive	P
Semi-Primitive, Non-Motorized	SPNM
Semi-Primitive, Motorized	SPM
Roaded Natural	RN
Rural	R

ROS boundaries are general locations only. For more detailed information about ROS objectives, refer to "Standards and Guidelines" in the Forest Plan.

Objectives for Social Encounters
(based on National Forest ROS Guidelines)

Recreation Opportunity	Social Encounter
Rural	15 per hour[1]
Roaded Natural	15 per hour[1]
Semi-Primitive Motorized	15 per day[2]
Semi-Primitive Non-Motorized	15 per day[2]
Primitive	15 per day[2]
Pristine (none existing or proposed)	N/A

Numbers refer to a measurement of "Social Encounters". An encounter is defined as 1 vehicle or 6 or fewer people. For example, if you pass a group of 14 on the trail, that would equal 3 encounters; if you pass two jeeps, that would equal 2 encounters.

[1] 15 per hour for Forest Service permitted commercial tour operators only. All other users are moderate to high contact frequency.

[2] All users (commercial tours and self-guided).

Some unusual situations could be allowed in some locations; these are described for each MA.

ROS Class Boundary
Planning Area Limits
Sedona City Boundary
National Forest Boundary
Major Highway
Local Road
Oak Creek

Scale in Miles: 0 1 2 3 4 5

NORTH

Map 4

Management Areas

Decision Notice and Finding of No Significant Impact

For an Amendment to the Forest Plan for the Sedona Area - Amendment 12

Coconino National Forest, Sedona Ranger District

June, 1998

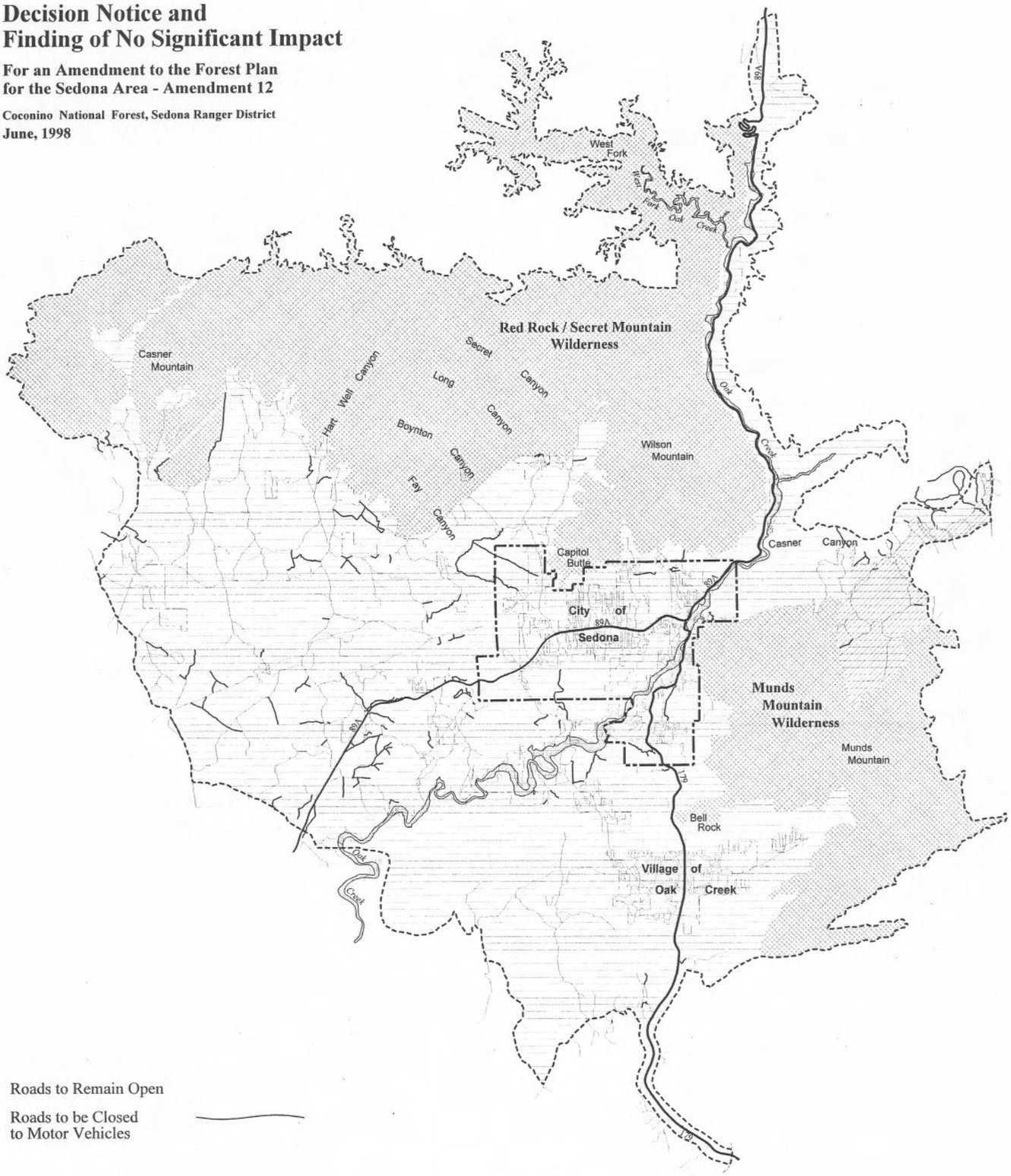
rest, Sedona Ranger District

June, 1998

Decision Notice and
Finding of No Significant Impact

For an Amendment to the Forest Plan
for the Sedona Area - Amendment 12

Coconino National Forest, Sedona Ranger District
June, 1998



Roads to Remain Open

Roads to be Closed to Motor Vehicles

Planning Area Limits

Sedona City Boundary

National Forest Boundary

Major Highway

Oak Creek

Off-Road Driving Allowed Except:

Wilderness
Closed to motor vehicles.

Restricted
Motor vehicle use on designated routes only.

Seasonally Restricted
Closed to motor vehicles during some seasons.

Map 5

Forest Road System and Motor Vehicle Travel Restriction

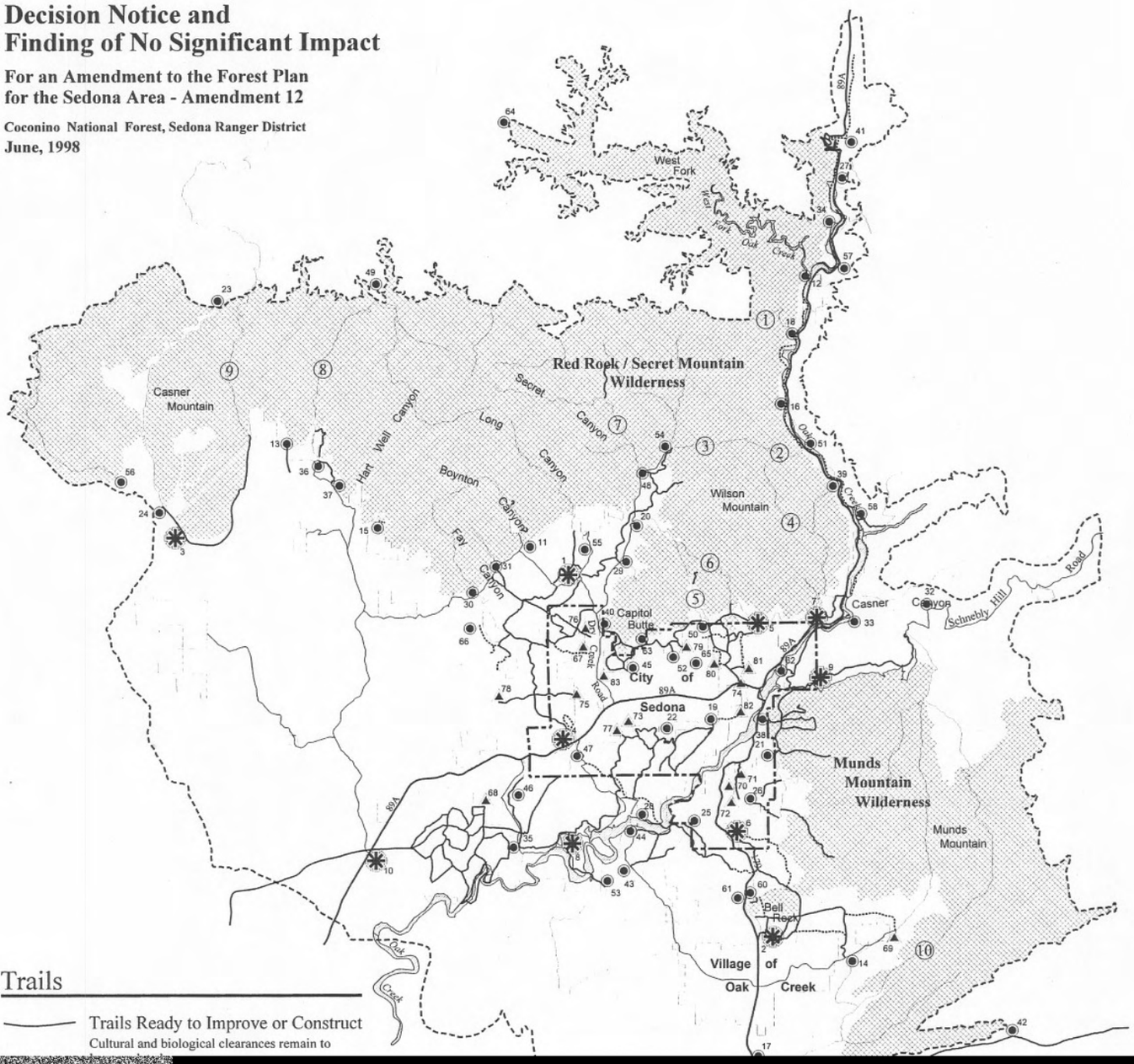
Scale in Miles: 0 1 2 3 4 5

NORTH

Decision Notice and Finding of No Significant Impact

For an Amendment to the Forest Plan for the Sedona Area - Amendment 12

Coconino National Forest, Sedona Ranger District
June, 1998



Trails

Trails Ready to Improve or Construct
Cultural and biological clearances remain to

Map 7

Prescribed Fire Projects
for Grasslands

Decision Notice and Finding of No Significant Impact
For an Amendment to the Forest Plan for the Sedona Area - Amendment 12

Coconino National Forest, Sedona Ranger District
June, 1998

= General regions wherein prescribed burns would be conducted.

Prescribed burns would be conducted principally to improve wildlife habitat and watershed conditions.

Actual individual burns would encompass small areas within these regions.

Prescribed burns would be conducted in this region after burn plans are prepared, and cultural and biological evaluations are completed.

- Prescribed burning would be conducted on National Forest land only.

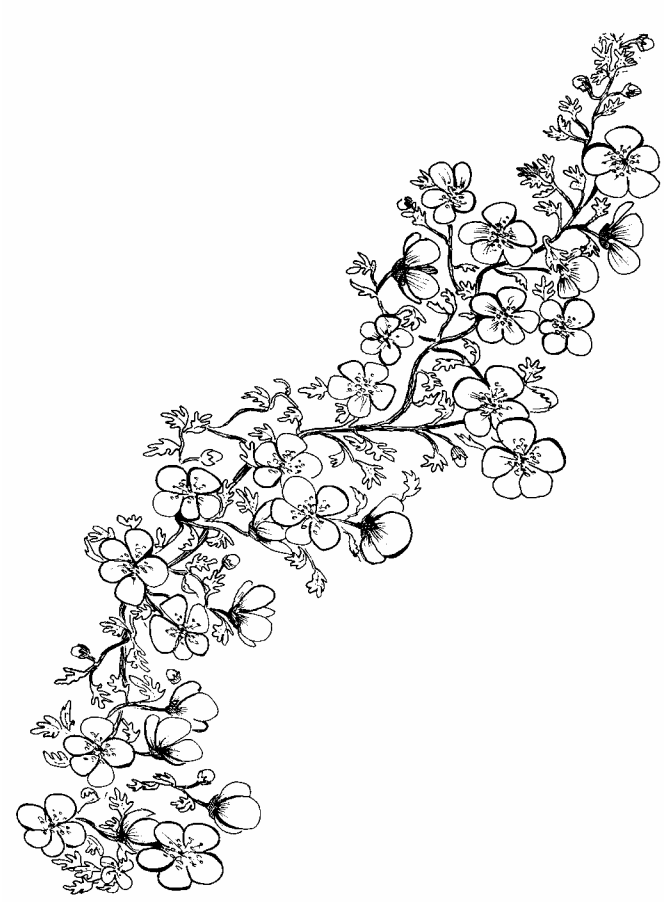
Planning Area Limits
Sedona City Boundary
National Forest Boundary
Major Highway
Local Road
Oak Creek
Wilderness

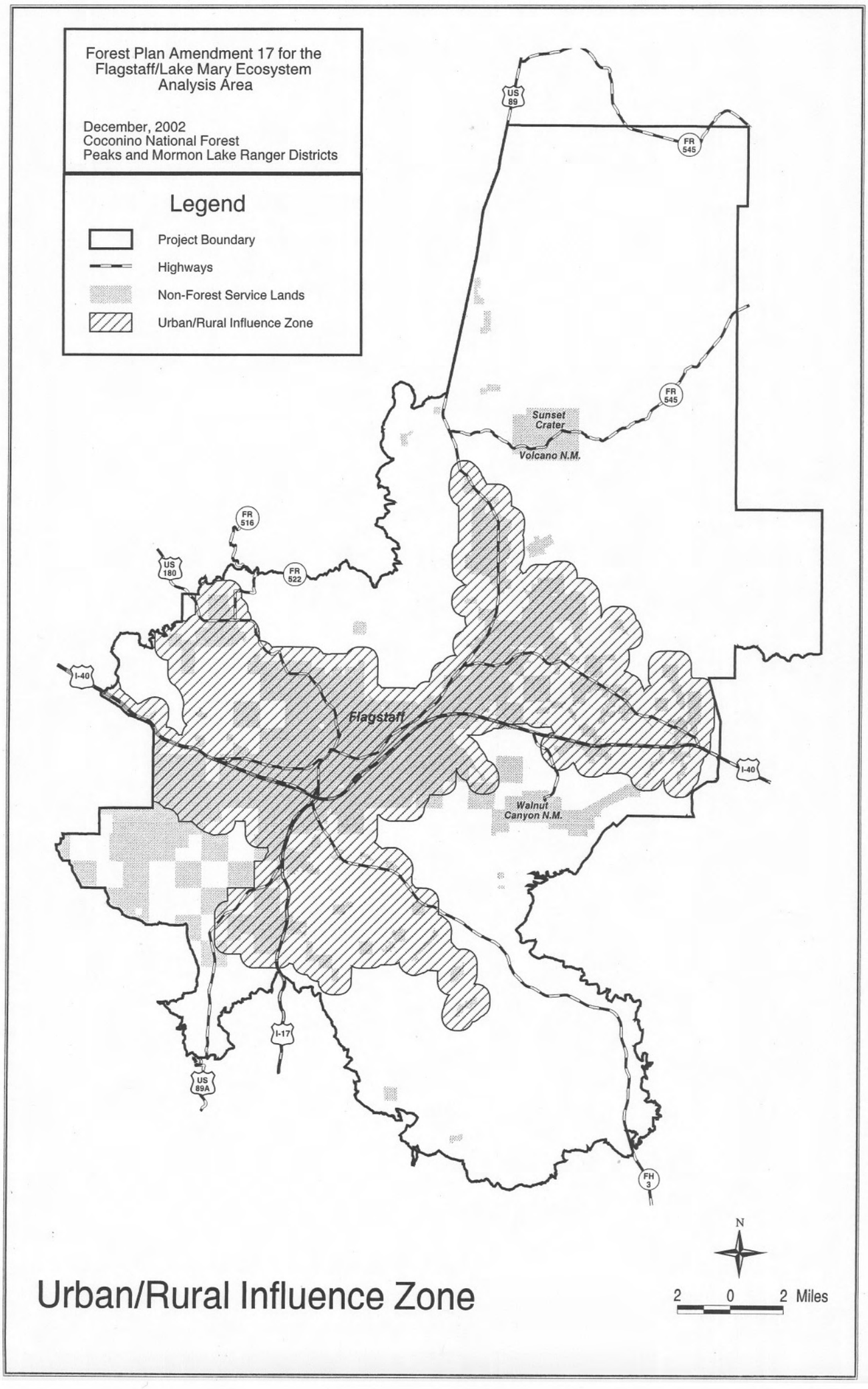
Scale in Miles: 0 1 2 3 4 5

NORTH

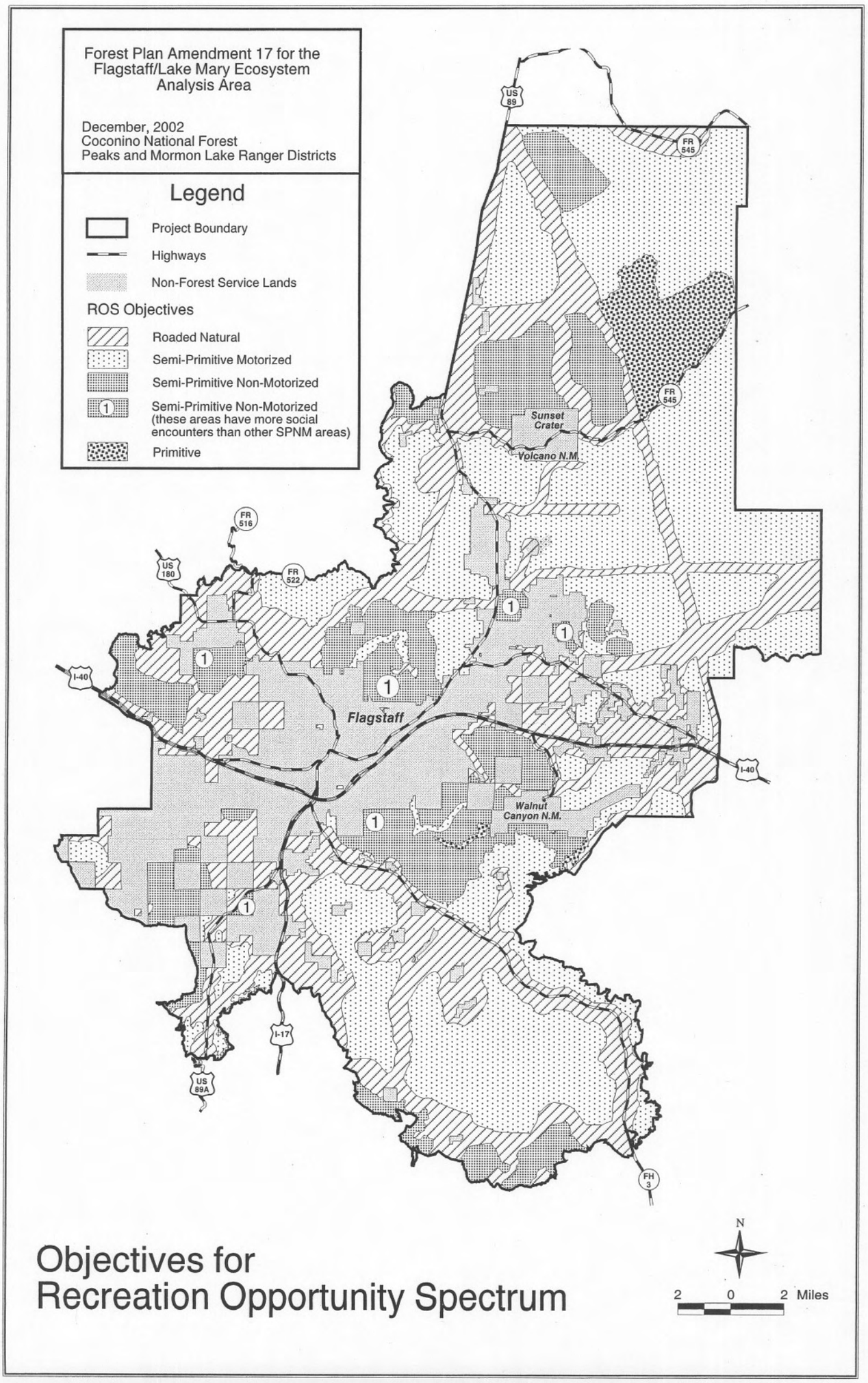
APPENDIX M

FLAGSTAFF/LAKE MARY AMENDMENT 17 MAPS

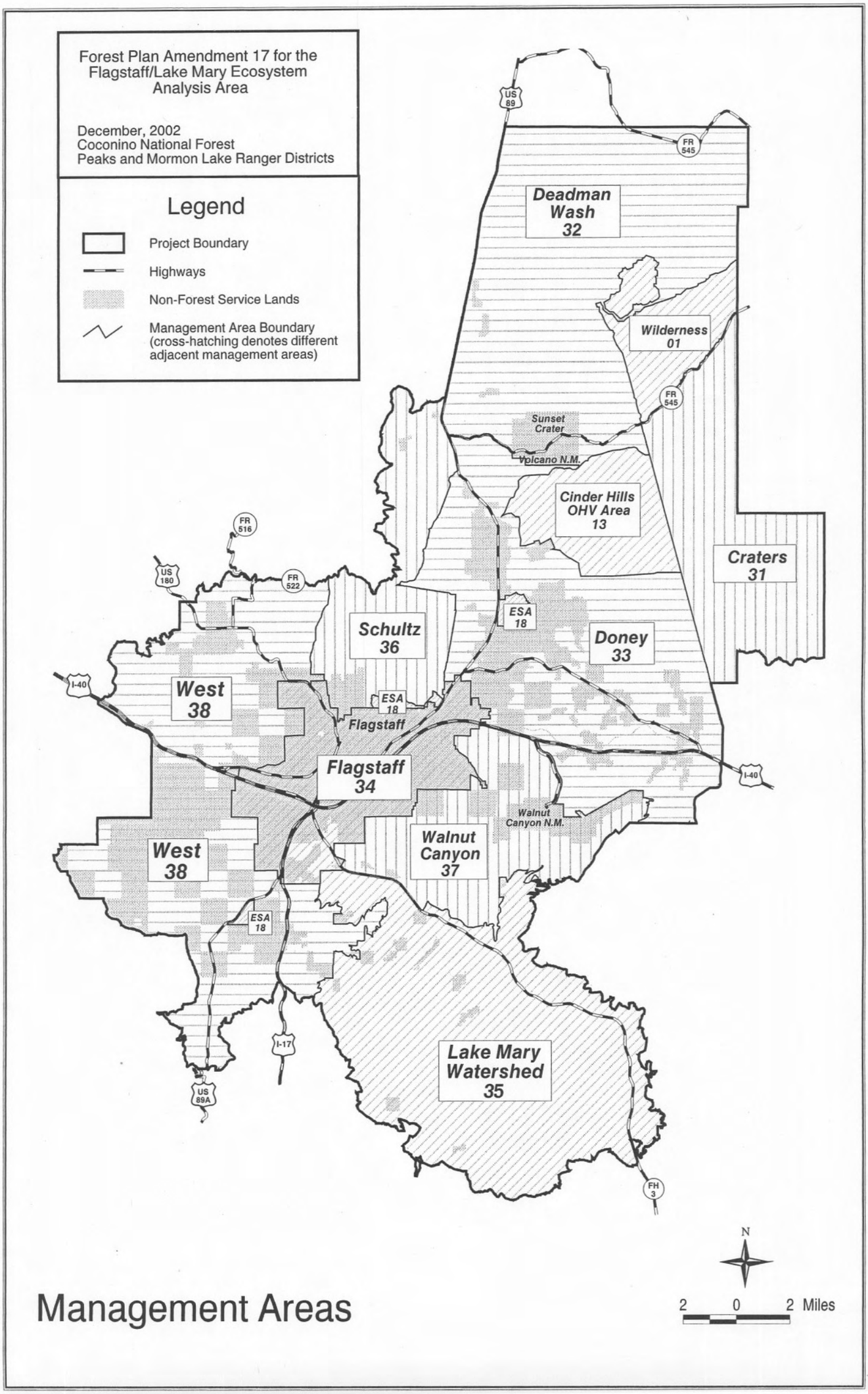




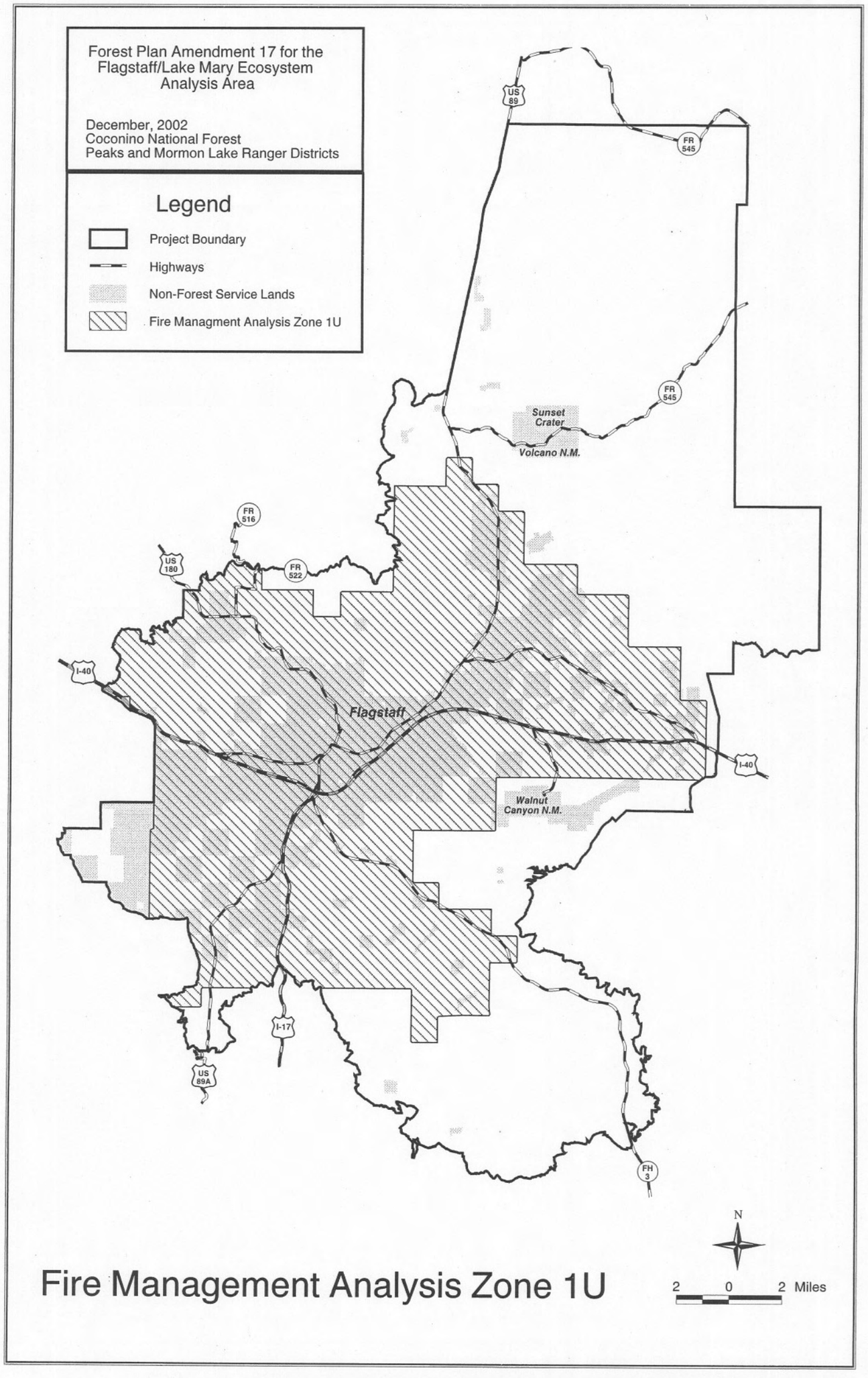
Urban/Rural Influence Zone



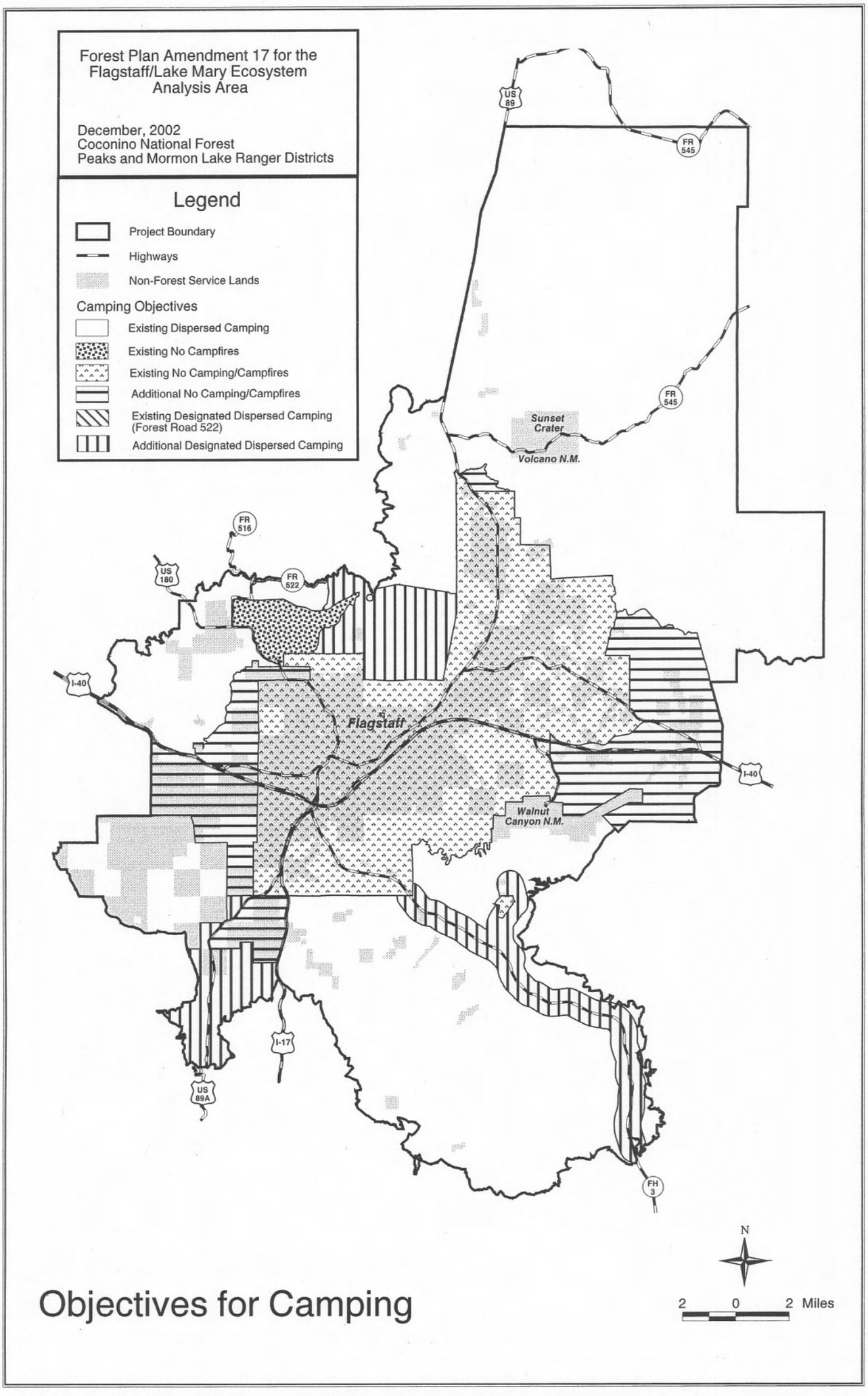
Objectives for Recreation Opportunity Spectrum



Management Areas

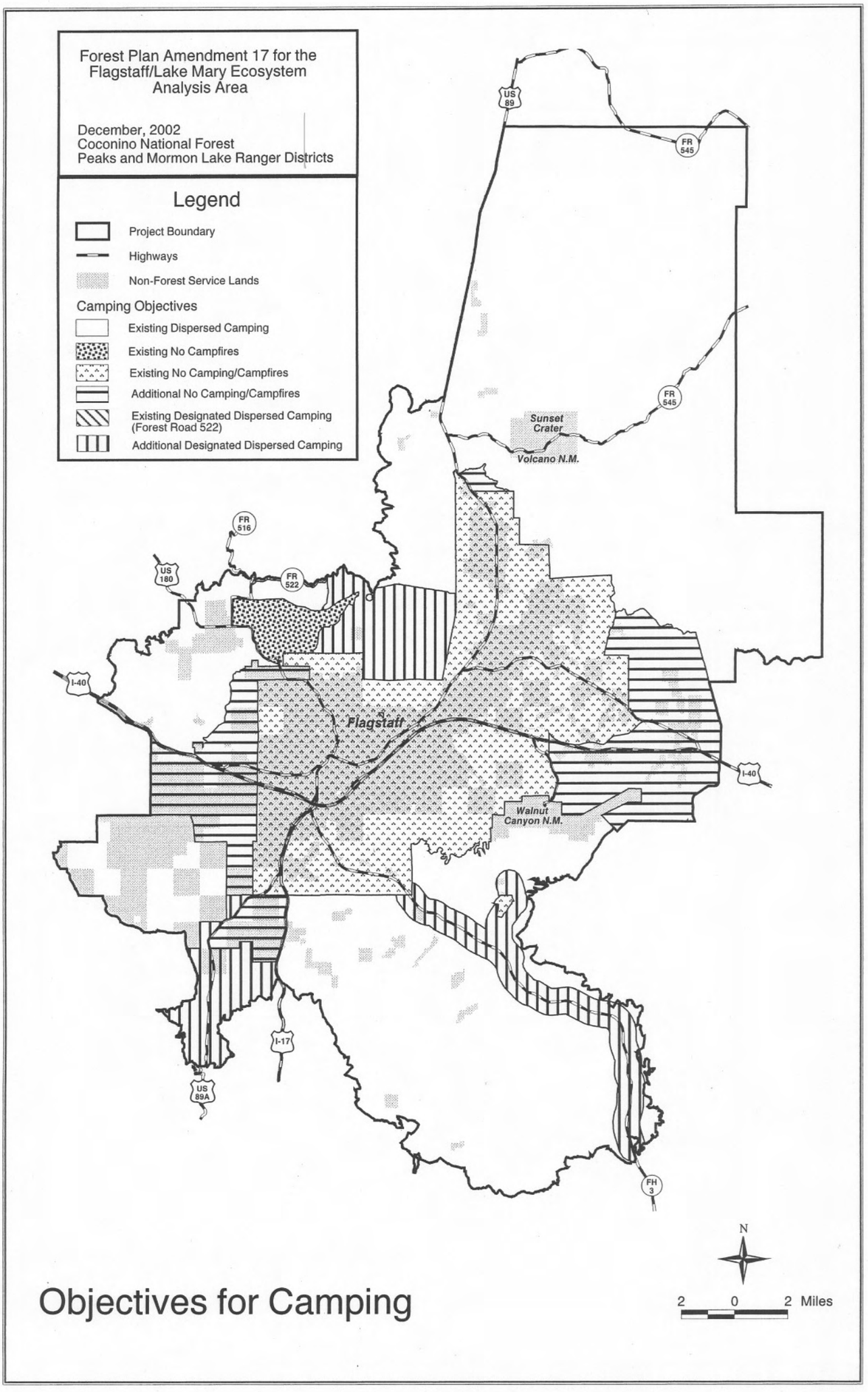


Fire Management Analysis Zone 1U



Objectives for Camping

U.S. GOVERNMENT PRINTING OFFICE: 2003-573-356/34066



Objectives for Camping

☆ U.S. GOVERNMENT PRINTING OFFICE: 2003-573-356/34066

Glossary

Acre foot	A water volume measurement equal to the amount of water that would cover 1 acre to a depth of 1 foot (43,580 cubic feet or 325,851 gallons).
Acres of final removal (frem)	A constraint used in FORPLAN to specify the minimum or maximum acres of suitable timber harvested by analysis area or Forest-wide during any time period to ensure that restocking the area within 5 years of final harvest will not exceed the Forest's personnel and fiscal abilities.
Activity Fuels	Logging debris left over from any activity such as firewood cutting, precommercial thinning, timber harvesting, and road construction.
Advisory Council on Historic Preservation	The independent Federal agency charged with advising the President and Congress on historic preservation matters. The Council reviews and comments on Federal projects that affect properties listed in, or eligible for, the National Register of Historic Places.
Age Class	Interval of years, commonly 20, into which trees are grouped for management. Example 1 To 20 Years, 21 To 40 Years.
Allocation	The assignment of management prescriptions to particular land areas to achieve the goals and objectives of an alternative.
Allotment Management Plan	A plan cooperatively developed by the Range permittee and the Forest that lists the management practices, AUM numbers, lists of improvement needs, salting practices, and administrative policies.
Allowable Sale Quantity (ASQ)	"The quantity of timber that may be sold from the area of suitable land covered by the forest plan for a time period specified by the plan. This quantity is usually expressed on an annual basis as the "average annual allowable sale quantity." [36 CFR 219.3]
Amenity	The pleasurable, educational, or esthetic features of the land or resources.
Amp	See "Allotment Management Plan."
Analysis Area	One or more land areas combined for the purpose of analysis to formulate alternatives and estimate various impacts and affects.
Animal Unit Month (AUM)	The quantity of forage required by one mature cow and calf (1,000 pounds), or the equivalent, for 1 month.
Arterial Roads	Roads that provide service to large land areas and usually connect with public highways or other Forest arterial roads to form an integrated network of roads designed for mobility and travel efficiency. They are usually developed and operated for long-term land and resource management purposes and constant service.
ASQ	See "Allowable Sale Quantity."
Available Forest Land	Lands that have not been legislatively withdrawn by Congress or administratively withdrawn by the Secretary of Agriculture or Forest Service Chief from timber production.

Background (Visual Distance Zone)	
	The distant part of a landscape; surroundings, especially those behind something, that provide harmony and contrast; area located from 3 to 5 miles to infinity from the viewer.
Basal Area	The area (in square feet) of the cross-section of a tree trunk near its base, generally at the breast height (4.5 feet above ground level), including the bark. Generally expressed as square feet per acre.
Base-For–Exchange	National Forest lands available for exchange to other landowners.
Base Sale Schedule	"A timber sale schedule formulated on the basis that the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than the long-term sustained yield capacity." [36 CFR 219.3 NFMA Regulations.] (See nondeclining flow.)
BCI	See "Biotic Condition Index."
Benchmark	A category of Forest Planning Alternatives used to establish standards by which to compare alternatives considered in detail. Benchmark Alternatives include minimum level, maximum resource levels, and maximum present net value levels. See Appendix B for a discussion of Benchmarks.
Benefit/Cost Ratio	The total discounted benefits of an activity divided by the total discounted costs.
Best Management Practices (BMP)	
	A practice or combination of practices that are the most effective and practical means of achieving resource protection objectives (primarily water quality protection) during resource management activities.
Big Game	The larger species of wild animals that are hunted, such as elk, deer, and turkey. Big game is classified by the Arizona Game and Fish Department.
Biological Potential	The maximum production of a selected organism that can be attained under optimum management. The final or stable biotic community in a vegetative association. The average net growth attainable in a plant community.
Biotic Condition Index (BCI)	A rating system measuring the biological and physical condition of an aquatic system.
BMP	See Best Management Practices.
Board Foot	Measure of an amount of timber equal to a board 12" x 12" x 1". The boards bought at a lumber store are somewhat smaller because they have been planed or made smooth.
Browse	Twigs, leaves, and young shoots of trees and shrubs on which animals feed. The Shrubs Used By Big Game Animals For Food.
Cable Logging	A loose term for the operation of any system involving transport of logs from stump to collecting points by means of steel cables where the load is partly or wholly lifted off the ground.
Candidate Species	See "Threatened and Endangered Species."
Canopy	The more or less continuous cover of branches and foliage formed collectively by the crowns of adjacent trees and other woody growth.

Canopy Closure	The progressive reduction of space between tree crowns as they grow toward each other.
Capability Area	An area of land used to estimate responses to various management practices, resource values, output coefficients, and multi-resource activities. Capability areas are based on potential natural vegetation, soil type, and slope as determined in soil-vegetation inventories.
Capable Forest Land	Land with a biological growth potential that is equal to or that exceeds the minimum standard for timber production. Trees will grow to a height of at least 40 feet in 100 years.
Carrying Capacity	In grazing management, the maximum level at which animals can graze an area without damage to the vegetation or related uses.
Cavity	The hollow excavated in trees by birds or other natural phenomena; used for roosting and reproduction by many birds and mammals.
Class I Area (Air Quality)	Any area that is designated for the most stringent degree of protection from future degradation of air quality. The Clean Air Act designates as mandatory Class I areas each national park over 6,000 acres and each national wilderness area over 5,000 acres that existed at the time of passage of the Clean Air Act.
Clearcutting	Harvesting all trees in one cut on an area for the purpose of crating a new, even-aged stand. Regeneration is obtained through natural seeding or through planting. Clearcutting is one of the most effective ways to regenerate aspen stands.
Collector Roads	Roads that serve smaller land areas and are usually connected to Forest arterial roads or public highways. They collect traffic from local roads and terminal facilities. Collector roads are developed and operated for constant service.
Commercial Forest Land (CFL)	Forest land that is producing or is capable of producing crops of industrial wood and has not been withdrawn by Congress, the Secretary, or the Chief; existing technology and knowledge is available to ensure timber production without irreversible damage to soils, productivity, or watershed conditions; and existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that adequate restocking can be attained within 5 years after final harvesting.
Commercial Thinning	Any type of thinning that produces merchantable material such as poles, posts and pulpwood in immature timber stands. Thinning improves the quality, composition, and growth of the remaining trees.
Common Sense	Sound practical judgment that is independent of specialized knowledge, training, or the like; normal native intelligence.
Composites	Property approved for purchase, using L & WCA funds.
Concession Permit	A permit that authorizes private individuals or corporations to operate Forest Service–owned facilities as a commercial profit–making venture.
Constraint	A quantification of the minimum or maximum amount of an output or cost that could be produced or incurred in a given time period.

Consumptive Use	Those uses of a resource that reduce the supply. Fore example, some consumptive uses of water are irrigation, domestic, and industrial use.
Cord	A unit of gross volume measurement for stacked round or split wood. A standard cord is 4' x 4' x 8' or 128 cubic feet. A standard cord may contain 60 to 100 cubic feet of wood depending on the size of the pieces and the Compactness of the Stack.
Corridor	"A linear strip of land identified for the present or future location of transportation or utility rights-of-way within its boundaries." [36 CFR 219.3]
	Designated Corridors – Any existing or planned corridor, the need for which has been identified through environmental analysis or a land and resource management planning process that may be capable of accommodating additional rights-of-way for upgrading existing systems.
	Planning Corridors – An area between two windows not closed to corridor use.
Cost Efficiency	A comparative measure of economic efficiency determined by maximizing the present net value of an alternative, subject to meeting the objectives of the alternative.
Council on Environmental Quality (CEQ)	
	An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews Federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.
Cover/Forage Ratio	The ratio of area cover, usually conifers, to foraging areas, natural openings, and clearcuts.
Critical Habitat	That portion of a wild animal's habitat that is critical for the continued survival of the species. "Critical" is a formal designation.
Cubic Foot	A unit of volume measure equivalent to a piece of wood 1' x 1' x 1'.
Cultural Resource	The physical remains of past human culture systems and places or sites of importance in human history or prehistory. Also includes places, and objects that have religious, economic, or commemorative importance.
Cumulation Of Mean Annual Increment - See "Mean Annual Increment."	
D.B.H.	Diameter at breast height. Diameter of a tree approximately 4-1/2 feet above the ground.
Demand	As used in this document is the quantity demanded, or projected consumption, at current prices. The assumption is made that prices will stay essentially the same relative to other items, i.e., changed only by inflation.
Departure	A schedule that deviates from the principle of nondeclining flow by exhibiting a planned decrease in the timber sale and harvest schedule in the future. A departure can be characterized as a temporary increase, usually in the beginning decade(s) of the planned period, over the base sale schedule that would otherwise be established, without impairing the future attainment of the Forest's long-term sustained-yield capacity.
Developed Recreation	Recreation that requires facilities that result in concentrated use of an area. Examples are campgrounds and ski areas. Facilities might include roads, parking lots, picnic tables, toilets, water systems, ski lifts, and buildings.

D.I.B.	Diameter of a tree inside the bark.
Discounting	An adjustment using an interest rate for the value of money over time so that costs and benefits are adjusted to a common time.
Disinvestment (Roads And Facilities) - Loss or decrease of capital investment value due to inadequate maintenance.	
Dispersed Recreation	Recreation use that occurs outside the developed sites and requires few, if any, improvements other than roads or trails. Representative activities are hiking, backpacking, driving for pleasure, viewing scenery, snowmobiling, cross-country skiing, hunting, off-road vehicle use, and berry picking.
Diversity	"The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan." [36 CFR 219.3]
Diversity Index (Absolute)	A number that indicates the relative degree of diversity in habitat per unit area. The index reports on a scale of 0 to 1.0 with 1.0 being the most diverse. The index measures the variation between structural stages within each vegetation type.
DRC (Diameter At Root Crown)	Stem diameter as measured 6 inches above ground level.
ECOSIM	A computer program used to simulate timber growth and yield based on site index, basal area, species, mortality, mistletoe rating, and silvicultural practices.
Economic Efficiency	The relative amount of outputs (benefits) versus inputs (costs). It is usually measured by present net values.
Effects	Results expected to be achieved from implementation of alternatives relative to physical, biological, and social (cultural and economic) factors resulting from the achievement outputs. Examples of effects are tons of sediment, pounds of forage, person-years or employment, and income. There are direct effects, indirect effects, and cumulative effects.
Ending Inventory	The remaining timber inventory volume at the end of the final period of the planning horizon.
Environmental Analysis	An analysis of a proposed action and alternatives to it and their predictable short- and long-term environmental effects including physical, biological, economic, social, and environmental design factors and their interactions.
Environmental Assessment (EA)	A concise public statement that reveals the trade-offs between alternatives and documents the results of the environmental analysis.

Environmental Impact Statement (EIS)

Documentation of environmental effects and action required for major Federal actions under Section 102 of the National Environmental Policy Act (NEPA), and released to the public and other agencies for comment and review. It is a formal document that must follow the requirements of NEPA, the Council on Environmental Quality (CEQ) guidelines, and directives of the agency responsible for the project proposal.

Even-Aged Management

"The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages (and, therefore, tree size) throughout the forest area. The difference in age between the trees forming the main canopy level of a stand usually does not exceed 20 percent of the age of the stand at harvest rotation age. Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands." [36 CFR 219.3]

Even-Flow

Maintaining a relatively constant supply of timber from decade to decade.

Facility Condition Class

The rating system used in the Recreation Information Management system to classify the condition and maintenance needs of recreation sites and areas. Class 1: Satisfactory (facility safe and sanitary); Class 2: Substandard (facility safe and sanitary but substandard); Class 3: Heavy Maintenance (facility unsafe but economically repairable); Class 4: Replacement (facility unsafe); Class 5: Betterment (facility unsafe, requires different kind of facility); Class 6: Nonexisting—substitute (same as 5, but for site development); Class 7: Nonexisting (add new facility); Class 8: Eliminate.

Fee Site

A Forest Service recreation area in which users must pay a fee. Fee sites must meet certain standards and provide certain facilities as specified in the Forest Service Manual.

Filter Strip

An undisturbed area of vegetation and forest litter that is located between a ground disturbing activity and an intermittent or perennial water course for the purpose of filtering sediment from runoff and to provide shade and bank stability. The ability of a buffer strip to trap and filter sediments is a function of the amount and type of material on the ground, width, and slope of the strip. The ability of the strip to provide shade over perennial streams is dependant on the height of the vegetation and orientation standards and guidelines are for acreage ground cover conditions and are primarily concerned with filtering sediments since little activity planed adjacent to perennial stream courses.

Final Removal

Removal of the last seed bearing trees or shelter trees after regeneration is considered to be established under a shelterwood system.

Fire Management Area

One or more parcels of land with clearly defined boundaries and with established fire management direction which is responsive to land and resource management goals and objectives.

Fire Management Effectiveness Index (FMEI)

The index value measures effectiveness of annual fire management operational programs. It is a planning, attainment, and evaluation tool for both annual and long-term programs. Measured in dollars per thousand acres protected, the objective is to minimize the index value.

Fire Risk	FIRE RISK The probability of a fire starting from natural or person causes.
Fisheries Habitat	Streams, Lakes, and reservoirs that can support fish.
Floodplain	Land adjacent to a channel that is covered with water when the channel overflows its banks. Also includes land adjacent to Lakes and reservoirs.
Filter Strip	An undisturbed area of vegetation and forest litter that is located between a ground disturbing activity and an intermittent or perennial water course for the purpose of filtering sediment from runoff and to provide shade and bank stability. The ability of a buffer strip to trap and filter sediments is a function of the amount and type of material on the ground, width, and slope of the strip. The ability of the strip to provide shade over perennial streams is dependent on the height of the vegetation and orientation standards and guidelines are for acreage ground cover conditions and are primarily concerned with filtering sediments since letter activity planned adjacent to perennial stream courses.
Final Removal	Removal of the last seed bearing trees or shelter trees after regeneration is considered to be established under a shelterwood system.
Fire Management Area	One or more parcels of land with clearly defined boundaries and with established fire management direction which is responsive to land and resource management goals and objectives.
Fire Management Effectivenes Index (FMEI)	The index value measures effectiveness of annual fire management operational programs. It is a planning, attainment, analysis and evaluation tool for both annual and long-term programs. Measured in dollars per thousand acres protected, the objective is to minimize the index value.
Floodplain	Land adjacent to a channel that is covered with water when the channel overflows its banks. Also includes land adjacent to lakes and reservoirs subject to inundation. The minimum area included is that subject to a 1 percent (100-year recurrence) or greater change of flooding in any given year.

Forage	All nonwoody plants (grass, grass-like plants, and forbs) and portions of woody plants (browse) available to domestic livestock and wildlife for food. Only a portion of a plant is available for forage if the plant is to remain healthy.
Foreground (Visual Distance Zone)	The part of a scene or landscape that is nearest to the viewer and in which detail is evident, usually from one-quarter to one- half mile away.
Forest and Renewable Rangeland Planning Act of 1974	An Act of Congress requiring the preparation of a program for the manamgnet of the National Forests' renewable resources, and of land and resource management plans for units of the National Forest System. It also requires a continuing inventory of Forests and rangelands nation-wide.
Forest Land	"Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest use. Lands developed for non-forest use include areas for crops, improved pasture, residential, or administrative areas, improved roads of any width, and adjoining road clearing and powerline clearing of any width." (36 CFR 219.3)
Forest System Road	Roads that are part of the Forest transportation system, including existing and planned roads.
Forest-wide Standard	A performance criterion indicating acceptable norms or specifications that actions must meet to maintain the minimum conditions for a particular resource. This type of standard applies to all areas of the Forest regardless of any other management direction applied unless the other management directions is more constraining.
FORPLAN	A linear programming system used to schedule and allocate resource outputs and to perform budgeting operations in order to develop and analyze Forest planning alternative actions.
FSM	Forest Service Manual.
Fuelbreak	Any natural or constructed barrier used to segregate, stop, and control the spread of fire or to provide a control line from which to work.

Game Species	Any species of wildlife or fish for which seasons and bag limits have been prescribed, and which are normally harvested by hunters, trappers, and fishermen under State or Federal laws, codes, and regulations.
Goal	"A concise statement that describes a desired condition to be achieved sometime on the future. It is normally expressed in broad, general terms and is timeless in that it has no specific data by which it is to be completed. Goal statements form the principal basis from which objectives are developed." [36 CFR 219.3 NFMA Regulations]
Grasslands	Lands where the vegetation is dominated by grasses, grass-like plants, and/or forbs. Non-Forest land is classified as grassland when herbaceous vegetation provides at least 80 percent of the canopy cover including trees. Lands not presently grasslands that were originally or could become grasslands through natural succession may be classified or potential natural grasslands.
Grazing Capacity	See "Carrying Capacity."
Grazing Management	The manipulation of grazing and browsing animals to accomplish desired result.
Grazing Permittee	An individual who has been granted a Federal permit to graze livestock for a specific period on a range allotment.
Group Selection Cutting	Removing small groups of trees to meet a predetermined goal of age distribution and species in the remaining stand. The distance across an opening created by removal of a group of trees is usually no more than one to two mature tree heights.
Growing Stock Level (GSL)	The stand density level, usually expressed as a number of trees per acre or basal area per acre in square feet, needed to maintain optimum tree growth through the life of a stand. Trees 10 inches in diameter at breast height (d.b.h.) and above are used to calculate the square foot basal area per acre.
Guideline	An indication or outline of policy or conduct.
Habitat Capability Index	An index with a range from zero to one, with one being the optimum. The index displays the percent of acres in an area meeting selected wildlife species habitat requirements for feeding and cover.
Habitat Capability Model	A computer model used to evaluate the capability of an area to support selected wildlife species. The model evaluates the mix and proportion of structural stages in different vegetation types and determines a habitat capability index.
Harvest Cut	A general term for the removal of physically mature trees, in contrast to cuttings that remove immature trees.
Herbage	The above-ground material of any herbaceous plant.
Hiding Cover	The vegetation capable of hiding a deer or elk from human view at a distance of 200 feet or less. Generally provided by seedlings and saplings or high basal area (120 sq. ft. +) poletimber, structural stages 2 and 3c.

Historic Trails	Trails whose purpose is the identification and protection of a nationally or regionally significant historic route and its historic remnants and artifacts for public use and recreational enjoyment. These trails must have had a far-reaching effect on broad patterns of American culture, and possess significant potential for public recreational use or historical interest based on historic interpretation and appreciation.
Homogenous Response Unit (HMU)	A parcel of land identified by common vegetative, administrative, and political characteristics.
Horizontal Diversity	The diversity in an area that results from the number of plant communities or successional stages or both.
Immature Sawtimber	Trees that are 9 inches in diameter at breast height (d.b.h.) and larger, but have not reached full development.
Implementation Schedule	A document listing specific implementation activities and programs as directed in Forest Plan Standards and Guidelines.
Implementing Regulations	Regulations generated by an agency to implement Acts of Congress.
Improvement	Developments such as roads, trails, fences, stock tanks, pipelines, power and telephone lines, survey monuments, and ditches.
In-Holdings	Lands within the proclaimed boundaries of a National Forest that are owned by Some Other Agency, Organization, Or Individual.
Indicator Species	A wildlife species whose presence in a certain location or situation at a given population level indicates a particular environmental condition. Population changes on an indicator species are believed to indicate effects of management activities on a number of wildlife species.
Indigenous Species	Species historically native to an area; not introduced by people.
Inoperable Lands	Timber lands, usually greater than 40 percent slope, not meeting the Forest cable logging criteria. See Operable Lands for criteria definition.
Instream Flow	Flows needed to meet season streamflow requirements for maintaining aquatic ecosystems, visual quality, and recreational opportunities at acceptable levels.
Integrated Pest Management	"A process for selecting strategies to regulate forest pests in which all aspects of a pest-host system are studied and weighed. The information considered in selecting appropriate strategies include the impact of the unregulated pest population on various resource values, alternative regulatory tactics and strategies, and benefit/cost estimates for these alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pest-host system and consist of a combination of tactics such as timber stand improvement plus selective use of pesticides. A basic principle in choice of strategy is that it be ecologically compatible or acceptable." [36 CFR 219.3]

Integrated Stand Management	A concept for designing a complex timber sale by identifying stands or portions of stands to be treated and incorporating within each unique treatment prescriptions considering all appropriate resources. Each stand to be treated is a timber sale cutting unit (CU). Each cutting unit is individually designed and assessed for its effects, impacts, and contributions to management objectives of the analysis area. The Integrated Stand Management Concept, when implemented through the use of the CU, allows an individual stand or portions of a stand to be treated with its own unique integrated (other resources considered) prescriptions, constraints, and requirements. The CU provides flexibility for determining location, shape and size of cutting units, and the relationship of cutting units to each other. Since stands to be treated (cutting units) are relatively small (10 to 100 acres), the integrated stand management concept allows a more complete silvicultural treatments.
Intensive Grazing	Grazing management that controls distribution of cattle and duration of use on the range, usually by fences, so parts of the range are rested during the growing season.
Interdisciplinary Team (IDT)	A group of individual with skills from different disciplines. An interdisciplinary team is assembled because no single scientific discipline is sufficient to adequately identify, analyze, and resolve issues or problems.
Intermediate Cutting	Any removal of trees from a stand between the time of its formation and the regeneration cut. Most commonly applied intermediate cuttings are release, thinning, improvement, and salvage.
Interpretive Sites	A developed site at which a broad range of natural or cultural history is interpreted or described for the public.
Invasive species	**A species that is 1) non-native (or alien) to the ecosystem under consideration and 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. (Executive Order 13112).**
ISM	See Integrated Stand Management.
Issue	A subject, question, or conflict of widespread public discussion or interest regarding management of National Forest System lands.
Key Area	Areas of land or water that the responsible official and resource specialist determine to be important to wildlife or fish productivity. Other uses in key areas could result in negative effects to the wildlife of fish. For example, timber sale activity in an elk calving area could disturb the elk and cause calving failures.
LAC	See Limits of Acceptable Change.
Land Exchange	The conveyance of non-Federal land or interests to the United States in exchange for National Forest System land or interests in land.
Less Than Standard (Recreation)	Management of recreation facilities and areas at levels below established standards and objectives.
Limits of Acceptable Change (LAC)	The limits of acceptable change concept represents an approach to managing recreational use within its carrying capacity.

Linear programming model — A mathematical method used to determine the best use of resources to achieve a desired result when limitations on available resources can be expressed in the form of equations. Resource outputs and costs are allocated and scheduled according to constraints and objectives applied to the model.

Local Roads — Roads that connect terminal facilities with Forest collector roads, Forest arterial roads, or public highways. Local roads serve a specific resource activity rather than travel efficiency.

Long-term Sustained-Yield Capacity

"The highest uniform wood yield from lands being managed for timber production that may be sustained under a specific management intensity consistent with multiple-use objectives." [36 CFR 219.3]

Management Area — An area that has common direction throughout and that differs from neighboring areas. The entire Forest is divided into management areas where common standards and guidelines apply.

Management Direction — "A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them." [36 CFR 219.3NFMA Regulations]

Management Intensity — "A management practice or combination of management practices and associated costs designed to obtain different levels of goods and services." [36 CFR 219.3]

Management Intensity Levels (grazing)

Level A—Livestock grazing is eliminated or restricted to situations where it will meet other resource objectives, such as fuel hazard reduction in recreational areas. Areas managed under Level A are not counted in determining livestock forage capacities.

Level B—Livestock grazing is very limited. Management is generally accomplished by moving livestock from one place to another. Capacity and actual use are kept in balance by removing or adding livestock. There is very little structural improvement work done, such as fences or water development, and no forage improvement work, such as seeding.

Level C—Livestock grazing is controlled through structural improvements and by physically moving livestock. Long-term capacities are balanced with use by adjusting numbers of livestock. Any forage improvement is generally the result of meeting other resource objectives, such as wildlife habitat improvement.

Level D—Areas under Level D management are managed intensively for livestock grazing within an overall multiple use concept. Any structural or nonstructural (forage) improvement technique may be used as long as it fits with the natural environment. Reasonable and approved management techniques are applied to sustain capacity and use at high levels.

Level E—Level E management is applied to areas to achieve the maximum livestock production capacity that the land can support. Any management technique can be applied as long as basic watershed values are protected. Some management activities, such as irrigating or large scale planting of non-native grass species, may change the natural character of the land. It could include high intensity – short duration grazing systems, but this is not a necessary prerequisite for Level E management.

Management Practice	"A very specific activity, measure, course of action, or treatment." [36 CFR 219.3]
Management Prescription	"Management practices and intensity selected and scheduled for application on a specific area to attain multiple-use and other goals and objectives." [36 CFR 219.3]
Mature Sawtimber	Trees that have attained full development and the growth rate has leveled off. Maturity is different for each tree species and varies with the quality of site on which the tree is growing.
MBF (thousand board feet)	A symbol to indicate 1,000 board feet of wood fiber volume, in log form or after conversion into lumber.
Mean Annual Increment	The total increment of volume growth per acre, usually expressed in cubic feet, up to a given age, divided by that age. Culmination of mean annual increment of growth is the age at which this mean is greatest or reaches its highest point.
Middle ground (Visual distance zone)	That part of a scene or landscape that extends from the foreground zone to 3 to 5 miles from the observer.
Mineral Development	The preparation of a proven mineral deposit for mining.
Mineral Entry	The right under the Mining Law of 1872 to enter nonwithdrawn public domain land, such as National Forests, and to explore for, extract, and sell certain locatable minerals; protected by the filing of a lode, placer, or mill site claim.
Mineral withdrawal	Public lands withdrawn from mineral entry under the provisions of the General Mining Laws and the mineral leasing laws. Lands withdrawn usually have unique features that are highly valued by the public or are needed for administrative purposes. Withdrawal from both the General Mining Laws and the mineral leasing laws are two separate and distinct processes.
Minerals, common variety	Deposits which, although they may have value for use in trade, manufacture, the sciences, or in the mechanical or ornamental arts, do not possess a distinct, special economic value for such use over and above the normal uses of the general sum of such deposits. May include sand, stone, gravel, pumicite, cinders, pumice (except that occurring in places over 2 inches on a side), clay, and petrified wood.
Minerals, demonstrated favorable	A geologic environment that has yielded in the past or is currently yielding mineral production.
Minerals, leasable	Coal, oil, gas, phosphate, sodium, potassium, oil shale, and geothermal steam.
Minerals, Locatable	Those hard rock minerals that are mined and processed for the recovery of metals. May include certain nonmetallic minerals such as valuable and distinctive deposits of limestone or silica. May include any solid natural inorganic substance occurring in the crust of the earth, except for the common varieties of mineral materials and leasable minerals.

Minerals, theoretically favorable

When geologic conditions are similar to those of a producing area or may be inferred similar through indirect evidence.

Minimum level management — The management strategy that would meet only the basic statutory requirements of administering unavoidable nondiscretionary land uses, preventing damage to adjoining lands for other ownerships, and protecting the life, health, and safety of incidental users.

Minimum streamflows — A specified level of flow through a channel that must be maintained by the users for biological, physical, and other purposes.

Mistletoe — Parasite plants that cause injury to their woody hosts. The most common are dwarf mistletoes that are found on conifers, especially ponderosa pine and Douglas–fir. Dwarf mistletoe can seriously retard growth and sometimes result in death of the host tree.

Mitigate — To lessen the severity.

Mixed Conifer — A mixture, in varying proportions, of ponderosa pine, Douglas – fir, white fir, and southwestern white pine. Ponderosa pine constitutes less than 50 percent of the mixture. Occasionally small amounts of Engelmann spruce or corkbark fir may also be present.

MMBF (million board feet) — A symbol to indicate one million board feet of wood fiber volume either in log form or after conversion to lumber.

Multiple use — "The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions, that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unity output." [36 CFR 219.3]

National Forest Management Act

A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Planning Act that requires the preparation of Regional and Forest Plans.

National Register of Historic Places

A listing, maintained by the USDI National Park Service, of areas that have been designated as being historically significant. The Register includes places of local and State significance as well as those of value to the Nation as a whole.

National Wild and Scenic River System

Rivers with outstanding and remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values designated by Congress under the Wild and Scenic Rivers Act for preservation in their free-flowing condition.

NEPA process — The environmental analysis process required by the National Environmental Policy Act.

Net Public Benefit	"An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure of index. The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple use and sustained yield." [36CFR 219.3]
No-action Alternative	Continuing current management. The most likely condition expected to exist in the future if current management direction would continue unchanged.
Nonattainment area	A geographical area in which air quality does not meet Federal standards.
Nondeclining Yield	A level of timber production planned so that the sale and harvest for any future decade is equal to or greater than the sale and harvest for the preceding decade.
Nonforest Land	Land that has never supported forests, and lands formerly forested where timber use is precluded by development for other use. Includes area used for crops, improved pasture, residential area, improved roads and adjoining clearings, and powerline clearing of any width. If intermingled in forest area, unimproved roads and nonforest strips must be more that 120 feet wide. Clearings must be more than 1 acre in size to qualify as nonforest land. Nonforest land is classified as land not suited for timber production.
Nongame Sepcies	Animal species that are not usually hunted. Designated by the State Legislature or Game and Fish Commission.
Nonmarket Valued Outputs (willingness to pay)	Goods and services valued in terms of what reasonable people would be willing to pay rather than go without the output.
Nonstructural range improvement or wildlife improvement	Modifying existing vegetation to improve the grazing resources or wildlife habitats. Examples are cutting or pushing juniper and seeding to grass or planting willows along a streamcourse.
Noxious Weed	**Noxious weed is a legal term applied to plants regulated by Federal and State Laws, such as plants designated as noxious weeds by the Secretary of Agriculture or by the responsible State official. Noxious weeds generally possess one of the more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, a carrier or host of serious insect or disease, and being not native or new or not common to the United States or parts thereof. (Forest Service Manual 2080.5, Federal Noxious Weed Act of 1974, PL 93-629, as amended.)**
Notice of Intent (minerals)	Written notice to the affected District Ranger by those who intend to engage in mining activity on the Forest of proposed prospecting, exploration, mining, and mineral processing activities.
Objective	"A concise, time-specific statement of measurable planned results that respond to pre-established goals. An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used in achieving identified goals. [36CFR 219.3]
Objective Function	A term in linear programming describing the criteria to be optimized. Examples of objective functions are: maximize timber, maximize livestock forage, or maximize present net value.

Obliteration	Returning the land occupied by a road or trail to production. Usually done by closing, plowing, and seeding the road or trail.
Occupancy Trespass	The illegal occupation or possession of National Forest land or public property.
Old-Growth	A stand of timber that is past full maturity and well into old age. The last stage in forest succession. Old growth characteristics for ponderosa pine include: at least 1,400 overstory trees per 100 acres equal to or greater than 20 inches d.b.h. on sites greater than 54 (minor); at least 1,400 trees per 100 acres equal to or greater than 14 inches d.b.h. on sites less than 54 (minor); at least two-storied stands with approximately 60 GSL in the understory; at least 180 snags per 100 acre greater than or equal to 14 inches d.b.h. and 15 feet tall; and at least two trees per acre of down woody material 12 inches or greater in diameter and 15 feet long. See Wildlife Coefficients Report of old growth characteristics for other species.
On-Site Soil Loss	The movement of soil from the point at which it was formed to another location.
Operable Lands	Timbered lands, usually 40 percent slope and greater, meeting the forest cable logging criteria. The cable logging criteria are: cut per acre must be 3 MBF or greater; maximum yarding distance not to exceed 1,300 feet (slope distance); volume from contiguous cable logging area must be at least 1 MMBF; sale area must also contain a minimum of 1 MMBF of conventional logging volume, or no less than a 50-50 mix; multi-span yarding is not required, and cable yarding areas must be 300 to 400 acres in size to meet the cut per acre and 1 MMBF requirement.
Opportunity Costs	The value of the benefits foregone or given up due to the effect of choosing another management alternative. This decision either impact existing outputs or shifts resources away from other activities so that they are no longer produced and their benefits are lost.
ORV	Off–road vehicles include all mechanical means of transportation that are capable of traveling over land where no road exists. Passenger cars, four-wheel drive vehicles, trail bikes, ATV's (all terrain vehicles), and snowmobiles are off-road vehicles.
Output Coefficient	Values that relate an acre of land to a particular quantity of output in a specific period of time.
Outputs	The goods, services, products, and concerns that are measurable and capable of being used to determine the effectiveness of programs and activities in meeting objectives. Outputs are also goods and products, or services, that are purchased, consumed, or used by people. A broad term for describing any result, product, or service that a process or activity actually produces.
Overmature Sawtimber	Trees that are past the age of full development. The age that this occurs depends on the species of tree and the quality of site on which it is growing.
Overstory	Relative to even-aged timber stands. That portion of trees, in a stand of trees of more than one story, forming the upper or uppermost canopy layer.
PAMARS	Program Accounting and Management Attainment Reporting System. Used by the Forest Service for monetary accounting and reporting Forest output targets.

PAOT (persons at one time)	A recreation-capacity measurement term indicating the number of people that can comfortably occupy or use a facility at one time.
Patented Mining Claim	A parcel of mineral land for which the Federal Government has conveyed its title to an individual.
Permitted Grazing	Use of a National Forest range allotment under the terms of a grazing permit.
Planning Horizon	The 200-year period for which timber growth and yield is modeled in order to assure achievement of long-term sustained yield.
Planning Period	The 50-Year Timeframe (1986-2035) Which Goods, Services, And Effects Are
Poletimber	A tree usually 5.0 to 8.9 inches in diameter at breast height (d.b.h.) and approximately 30 to 60 years old.
Potential Natural Vegetation (PNV)	The vegetation that would exist today if people were removed from the scene and resulting plant succession had taken place.
Pothunting	Collecting artifacts for personal use or to sell for profit. Generally an illegal and unprofessional activity.
Precommercial Thinning	Thinning or selectively cutting trees with diameters under 5 inches where material thinned does not have a market value. Selectively cutting trees to remove the least desirable trees and improve the spacing of remaining trees to Accelerate Growth.
Preparatory Cut	Removal of trees near the end of a rotation to permanently open the canopy and enlarge the crowns of seed bearers to improve conditions for seed production and natural regeneration. A part of the shelterwood system of timber harvest.
Prescribed Fire (planned fire)	Fire burning under conditions specified in an approved plan to dispose of fuels, control unwanted vegetation, stimulate growth of desired vegetation, and change successional stages to meet range, wildlife, recreation, wilderness, watershed or timber management objectives.
Present Net Value	"The difference between the discounted value (benefits) of all outputs to which monetary values or established market prices are assigned and the total Discounted Costs Of Managing The Planning Area." [36 CFR 219.3]
Presuppression	Actions taken before fires happen to ensure effective suppression action. Includes recruiting and training fire forces, planning and organizing attack methods, procuring and maintaining fie equipment, and maintaining structural improvements necessary for the fire program.
Proper Use	A degree of use of current year's growth which, if continued, will achieve management objectives and maintain or improve the long-term productivity of the site. Proper use varies with time and systems of grazing.
Proposed Action	In terms of the National Environmental Policy Act, the project, activity, or action that a Federal agency intends to implement or undertake; the Forest Plan.

Public Access	Refers to a road or trail over which a public agency claims a right-of-way available for public use.
Purchaser Credit	Method of payment for road work done by timber sale contractors, whereby the value of the work done is subtracted from the amount due for purchase of timber Products By The Contractor.
Range Allotment	A area operated under one plan of management designated for the use of a prescribed number of livestock owned by one or more permittees.
Range Capacity Levels	Levels are described as follows:
	No Allowable Capacity - Lands that are incapable of being grazed by domestic livestock under reasonable management goals. Examples include areas under natural conditions that are not capable of production vegetation, soils that are not capable of producing more vegetation than is needed to prevent excessive erosion rates, and slopes over 45 percent.
	Potential Capacity – Lands not undergoing accelerated erosion but requiring access, water developments, or other improvements to bring them up to full capacity.
	Full Capacity – Lands that are presently stable because effective ground cover is holding soil loss to an acceptable level and are, therefore, suited for grazing and can support a livestock operation.
Range Inventory	The systematic acquisition and analysis of resource information acquired through range inventory.
Rangeland (Range)	Land that supports vegetation useful for grazing. Vegetation is routinely managed through manipulation of grazing rather than cultural practice.
Raptor	Any predatory bird such as a falcon, hawk, eagle, or owl.
Record Of Decision (ROD)	A document separate from but associated with an Environmental Impact Statement that publicly and officially discloses the responsible official's decision on the proposed action.
Recreation Capacity	The number of people that can take advantage of the supply of a reaction opportunity without substantially diminishing the quality of the experience sought after.
Recreational Opportunity Spectrum (ROS)	
	A land classification system that categorizes National Forest land into six classes, each class being defined by its setting and by the probable recreation experiences and activities it affords. The six classes in the spectrum are: primitive, semi-primitive nonmotorized, semi-primitive motorized, roaded
	Primitive ROS Class – Characterized by an essentially unmodified environment, where trails may be present but structures are rare, and where the probability of isolation from the sights and sounds of people is high.

Semi-Primitive Nonmotorized ROS Class – Characterized by few and/or subtle modifications by people, and with a high probability of isolation from the sights and sounds of people.

Semi-Primitive Motorized ROS Class – Characterized by moderately dominant alterations by people, with strong evidence of primitive roads and/or trails.

Roaded Natural ROS Class – Characterized by a predominantly natural environment with evidence of moderate permanent resource use. Evidence of sights and sounds of people is moderated but in harmony with the natural environment. Opportunities exist for both social interaction and moderate isolation from sights and sounds of people.

Rural ROS Class – Characterized by an area in which the sights and sounds of people are prevalent and the landscape has been considerably altered by the works of people.

Urban ROS Class – Characterized by a natural setting dominated by human-made structures and the sights and sounds of people predominate.

Recreation Residence Site — House or cabin permitted on National Forest land for the recreational use of the owner, but not as a primary residence.

Recreation Visitor Day (RVD) — Recreational use that aggregates 12 person-hours, consisting of one person for 12 hours, two people for 6 hours, or any combination of people being in the Forest for a total of 12 person-hours.

Reforestation — Naturally or artificially restocking an area, usually to produce timber and other wood products, but also to protect watersheds, prevent soil erosion, and improve wildlife, recreation, and other natural resources. Natural reforestation includes site preparation to reduce competing vegetation and provide a mineral seed bed for seeds from seed trees. Artificial reforestation is planting seedlings, cuttings, or seeds by hand or mechanical means and may include site preparation.

Regeneration — The actual seedlings and saplings existing in a stand or the act of establishing young trees naturally or artificially.

Regeneration Cut — Harvesting trees to establish a new crop of trees.

Regional Guide — The document developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended, that guides natural resource management activities and establishes management standards and guidelines for the National Forest System lands of a given Region. It also disaggregates the RPA objectives assigned to the Region to the Forests within that Region.

Research Natural Area (RNA) — An area in as near a natural condition as possible that exemplifies typical or unique vegetation and associated biotic, soil, geologic, and aquatic features. RNA's are set aside to preserve a representative sample of an ecological community, primarily for scientific and educational purposes. Normally between 300 and 1,200 acres size.

Rest-Rotation	The use of different parts of a range in orderly sequence, i.e., regular periodic grazing of each part. If each part is rested, in turn, for a whole year, it is termed rest-rotation grazing.
Revegetation	Reestablishing and developing plant cover. This may take place naturally through the reproductive processes of the existing flora or artificially by Planting.
Right-Of-Way	Land authorized to be used or occupied for constructing, operating, maintaining, and terminating a project or facility passing, over, upon, under, or through such land.
Riparian Area	Definition: Riparian ecosystems are distinguished by the presence of free water within the common rooting depth of native perennial plants during at least a portion of the growing season. Riparian ecosystems are normally associated with seeps, springs, streams, marshes, ponds, or lakes. The potential vegetation of these areas commonly includes a mixture of water (aquatic) and land (Phreatic) Ecosystems.
Road Density	The measure of road miles occupies given land area, i.e., 1mi./sq. mi. is 1 mile of road within a given square mile.
Road Maintenance Levels	Levels are described as follows: Level 1: Road normally closed to vehicle traffic. Level 2: Road open for limited passage of traffic but not normally suitable for passenger cars. Level 3: Road open for public traffic including passenger cars, but may not be smooth or comfortable. Level 4: Road suitable for all types of vehicles, generally smooth to travel and dust may be controlled. Level 5: Road is smooth and dust free and the surface is skid resistant, if paved.
Rotation Age	The number of years required to establish, including the regeneration period, and grow timber crops to a specified condition or maturity for regeneration harvest. The rotation age will vary according to geographic location, tree species, and management objectives.
Roundwood	Trees that are used without being milled such as fence posts, telephone poles, and pulpwood.
RPA National Assessment	A document compiled by the Secretary of Agriculture every 10 years that contains facts and analyses to develop and guide public and private Forest and rangeland policies and programs.
RPA National Program	A document compiled by the Secretary of Agriculture every 5 years that outlines Forest Service programs for National Forest System management, cooperative assistance to States and private landowners, and research.

Sale Schedule	"The quantity of timber planned for sale by time period from an area of suitable land covered by a forest plan. The first period, usually a decade, of the selected sale schedule provides the allowable sale quantity. Future periods are shown to establish that long-term sustained yield will be achieved and maintained." [36 CRF 219.3]
Salvage Cutting	Cutting to remove trees in imminent danger of being killed or damaged by injurious agents. Dead and dying trees are included in salvage cuttings to reduce the spread of insects, disease epidemics, or wildfires.
Sapling	A timber size class definition; trees 1.0 to 4.9 inches at d.b.h.
Sawtimber	Trees that are at least 9.0 inches diameter at breast height (d.b.h.) that can be made into lumber.
Schedule	See "Implementation Schedule."
Scenic River	Wild and Scenic Rivers Act usage. Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
Sediment	Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or Ice, And Has Come To Rest On The Earth's Surface Either Above Or Below Sea Level.
Seed Cut	See "Shelterwood Cut."
Seedling	A timber size class definition; trees less than 1 inch d.b.h.
Selection Harvest Cut	A system that removes trees individually in a scattered pattern from a large area each year. (1) Individual tree selection cutting involves the removal of selected trees of all size classes on an individual basis. Regeneration is established under the partial shade of the overstory canopy after each cut. (2) Group selection cutting involves the removal of selected trees of all size classes in groups of a fraction of an acre up to 2 to 3 acres in size. Regeneration occurs in the groups under conditions similar to those found in small clearcuts. Considered an uneven-aged management system.
Sensitivity Level	A classification system for establishing three visual landscape categories according to public concern. This classification system is based on the premise that all landscapes are important, but those that are viewed by large numbers of people are most important. The classes are: 1- High, 2 - Moderate, and 3 - Low.
Seral	One stage in a series of steps in the process of ecological succession.
Shelterwood Cut	An even-age regeneration system where the mature trees are removed in two or more cuts designed to establish a new crop with seed and protection provided by a portion of the existing stand. (1) The preparatory cut removes a portion of the mature trees and is intended to make the remaining trees more wind firm;

preparatory cuts may be omitted where windfall is not a major concern. (2) The seed cut removes additional trees with the intent of allowing additional sunlight to reach the forest floor. The new trees become established following the seed cut. (3) The removal cut removes the last of the mature trees.

SHPO (State Historic Preservation Officer)

The state official responsible for consultation and assistance regarding the presence and significance of cultural resources in a project area, efforts needed to find and evaluate them, whether the project will cause harmful effects to the cultural resource, and how to reduce or avoid the harm.

Silviculture — The part of forestry dealing with the science and art of regenerating, establishing, caring for, and developing a stand of trees.

Site Class — A measure of the relative productive capacity of a site for the crop or stand, based on volume or height that is attained or attainable at a given age. Measure is expressed as Site Class I (site index of 75 or greater), Site Class II (site index 55 to 74), and Site Class III (site index of less than 55).

Site Index — A particular measure of site class, based on the height of the dominant trees in a stand at an arbitrarily chosen age (age 100 for western ponderosa pine). Measure is usually between 0 and 100, where site index of 100 equals a tree that is 100 years and 100 feet tall. Minor's southwestern ponderosa pine site index procedures were used.

Site Preparation — Preparing a seedbed by removing unwanted vegetation, slash, and sometimes roots and stones, from a site before reforestation. Can be associated with either Artificial Or Natural Reforestation.

Slash — The residue left on the ground after timber harvest or as a result of storms, fire, girdling, or poisoning. Slash includes unused logs, uprooted stumps, broken or uprooted stems and the heavier branchwood, lighter tops, twigs, leaves, bark, And Chips.

Small Game — Most birds and small mammals normally hunted or trapped. Designated by the Arizona Game And Fish Commission.

Snag — Standing dead tree from which the leaves or needles have fallen.

Special-Use Permit — A permit issued under established laws and regulations to an individual, organization, or company for occupancy or use of National Forest land or some Special Purpose.

Stand — A plant community sufficiently uniform in cover type, age class, risk class, vigor, size class, and stocking class to be distinguishable from adjacent communities thus forming an individual management or silviculture unit. Most commonly used when referring to forested area.

Standard — A principle requiring a specific level of attainment, a rule to measure against.

Standard Service Level	Managing recreation facilities and areas to established standards.
State Air Quality Regulations	The legal base for control of air pollution sources in that State. Prescribed burning is generally covered under these regulations.
Structural Improvement (range or wildlife)	Any type of range or wildlife improvement that is human-made such as fences, Water Developments, Corrals, And Waterfowl Islands.
Structural Stage	Any of several developmental stages of tree stands described in terms of tree age And The Extent Of Canopy Closure They Create.
Succession	An orderly process of biotic community development that involves changes in species, structure, and community processes with time.
Suitability	"The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses forgone. A unit of land may be suitable for a variety of individual or combined management practices." [36 CFR 219.3]
Suitable Timber Lands	See "Forest Land."
Suppression (fire suppression)	Any act taken to slow, stop, or extinguish a fire. Examples of suppression activities include line constructing, backfiring, and applying water or chemical fire retardants.
Sustained Yield (of products and services)	"The achievements and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the National Forest System without impairment of the productivity of the land." [36 CFR 219.3]
Targets	Quantifiable outputs that have been assigned as objectives.
Temporary Road	A road that will be physically obliterated and seeded after its primary use is completed such as a spur road used for logging. The road will never be sued again.
Thinning	Cutting made in an immature crop or stand, primarily to accelerate the annual growth of the remaining trees, but also by suitable selection to improve the average form of the trees that remain. Thinnings increase the total yield of wood from the stand.
Thermal Cover	Cover used by animals to reduce effects of weather; for elk, a stand of coniferous trees 40 feet or more tall with a high degree of crown closure, generally provided by high basal area (140 square feet plus) poletimber or old growth, structural stages 3c and 5.
Threatened and Endangered Species	Species identified by the Secretary of Interior in accordance with the 1973 Endangered Species Act, as amended.

Threatened Species – Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Endangered Species – Any species that is in danger of extinction throughout all or a significant portion of its range.

Candidate Species – There are three categories of candidate species:

Category 1 are those species for which the Fish and Wildlife Service has sufficient information to support the listing of the species.

Category 2 are those species for which the Fish and Wildlife Service does not have sufficient information on hand to list the species by is actively seeking information to determine the status of the species.

Category 3 are those species which are presently no longer being considered for listing, however, these species may be reevaluated in the future for listing if a change in conditions warrant it.

Tiering — Incorporating information contained in an EIS (Environmental Impact Statement), such as the Forest Plan EIS, by reference in subsequent environmental documents.

Timber Stand Improvements (TSI)

All intermediate cuttings made to improve the composition, constitution, condition, and growth of a timber stand.

Trailheads — The parking, signing, and other facilities available at the terminus of a trail.

Transition Zone — As used for Forest planning purposes, is the area of transition between ponderosa pine and pinyon-juniper. Includes the area where alligator juniper Commonly Occurs.

Transitory Range — Land that is suitable for grazing use of a transitional nature over a period of time. Fore example, after a timber sale, grass may cover the area for a period of time before being replaced by trees or shrubs not suitable for forage.

Transmission Pipeline — A pipeline that carries gas or liquid from a producing field or central collection facility to a storage or consumption facility, usually over long distances.

Travelway — A two-track road that has evolved primarily through use by off-road, high clearance vehicles; usually no planning, design, or construction has occurred and The Road Snakes Its Way Between Obstacles To Reach The User's Destination.

Type Conversion — The conversion of the dominant vegetation in an area from forested to nonforested or from one tree species to another.

Understory — The trees and other woody species growing under a more or less continuous cover of branches and foliage formed collectively by the upper portion of adjacent trees and other woody growth.

Uneven-aged Management	"The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection." [36 CFR 219.3] See Uneven-Aged Silviculture and Management in the United States, USDA, February, 1978.
Universal Soil Loss Equation (USLE)	An equation used to estimate soil movement based on soil characteristics, terrain characteristics, vegetative cover, conservation practices, and rainfall characteristics.
Unpatented mining claim	A claim in which an individual by the act of valid location under the mining laws and regulations, has obtained a right to remove and extract minerals from the land, but where full title has not been acquired from the U.S. Government.
Utility Corridor	The routes of oil, gas, or slurry pipelines or electrical transmission lines through the Forest.
Utilization Standards	Standards established to guide the use and removal of timber and measured in terms of minimum diameter at breast height, minimum length, and percent "soundness."
Variety Class	A classification system for establishing three visual landscape categories according to the relative importance of the visual features. This classification system is based on the premise that all landscapes have some visual values, but those with the most variety or diversity of visual features have the greatest potential for being or attaining high scenic value. The classes are; A – Distinctive, B – Common, and C – Minimal.
Vegetative Manipulation	To change one vegetation type to another mechanically with chemicals, or by using fire. Usually done to increase forage for livestock and wildlife.
Vertical Diversity	The diversity in an area that results from the complexity of the above ground structure of the vegetation. The more tiers of vegetation or the more diverse the species make-up, or both, the higher the degree of vertical diversity.
Viable Populations	A wildlife or fish population of sufficient size to maintain its existence over time in spite of normal fluctuations in population levels.
VIS (visitor information service)	A service provided to the public in which the public is supplied with information regarding opportunities or activities on National Forest land.
VIS Site	Visitor Information Service Site that provides interpretive information (directional, historical, statistical) located at Forest historical sites, overlook sites, or special interest areas.

Visual Distance Zones	Areas of landscape denoted by specified distances from the observer. Used as a frame of reference in which to discuss landscape characteristics or activities of people. The three zones are foreground, middleground, and background.
Visual Management System	Also referred to as "Landscape Management" or "Visual Resource Management." The art and science of planning and administering the use of Forest lands in such ways that visual effects are maintained or improved. Planning and designing visual aspects of multiple-use land management.
Visual Quality	A desired level of visual quality based on physical and sociological characteristics of an area. Refers to the degree of acceptable alterations of the characteristic landscape. 1. Preservation (P). In general, management activities are not detectable to the visitor. 2. Retention (R). In general, management activities are not evident to the casual Forest visitor. 3. Partial Retention (PR). In general, management activities may be evident but must remain subordinate to the characteristic landscape. 4. Modification (M). Management activity may dominate the characteristic landscape but must, at the same time, use naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in middleground or background. 5. Maximum Modification (MM). Management activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background. 6. Rehabilitation. A short-term management alternative used to restore landscapes that contain undesirable visual impacts to a desired visual quality. 7. Enhancement. A short-term management alternative that increases positive visual variety where little variety now exists.
Visual Resource	The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors.
Water Yield	The total net amount of water produced including sreamflow and groundwater Recharge.
Watershed	The area that contributes water to a drainage or stream.

Watershed Condition	Watershed condition is expressed as an index water quality, channel stability, and frequency of floods. The watershed condition index is a relative rating of the soil productivity and erosional characteristics of individual terrestrial ecosystems and of the hydrologic functioning of entire watersheds. The index is based on the quantity of cover and compares current conditions against both inherent potential conditions and minimally acceptable "tolerant" conditions. Soil Capability – The inherent capacity of a soil to support growth of specified plants, plant communities, or sequence of plant communities. Hydrologic Function – The behavioral characteristics of a watershed described in terms of ability to sustain favorable conditions of water flow. Favorable conditions are defined in terms of water quality, quantity, and timing. Potential Level – The maximum soil capability and optimum hydrologic function that is inherent to a watershed or portion of a watershed. Tolerance Level – The point beyond which there is high risk that potential may be permanently impaired through changes in specified physical, chemical, and biological factors brought about by management activities or natural events. Ground Cover – The total rock, litter, and vegetation (for soil capability), or the litter and basal area of perennial vegetation (for hydrologic function), that is in direct contact with the soil surface. Optimum Watershed Condition – Is defined as the terrestrial ecosystem or watershed that had a cover condition near inherent potential cover. Satisfactory Watershed Condition – Exists when a terrestrial ecosystem or watershed has sufficient ground cover to control surface runoff and erosion to at least the minimally acceptable tolerance conditions. Unsatisfactory Watershed Condition – The terrestrial ecosystem or watershed that is unstable or degrading with respect to inherent potential.
Wetlands	Areas with shallow standing water or seasonal to year-long saturated soils including bogs, marshes, and wet meadows.
WFUD	Wildlife and fish user day. A unit for measuring wildlife and fish user activities. One WFD is 12 person-hours.
Wild River	Wild and Scenic Rivers Act usage. Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted.
Wilderness	Under the 1964 Wilderness Act, wilderness is undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. It is protected and managed so as to preserve its natural conditions that (1) generally appear to have been affected primarily by the forces of nature with the imprint of human activity substantially unnoticeable; (2) have outstanding opportunities for solitude or a primitive and confined type of recreation; (3) have at least 5,000 acres or is of sufficient size to make practical its condition; and (4) may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest.

Wilderness Opportunity Spectrum	
	A system of classifying the wilderness into distinct management units possessing homogenous landscape and social characteristics. The classes are:
	Transition: Adjacent to and/or accessed from urban or rural developments or heavy use developed sites. Large numbers of day users traveling short distances into wilderness.
	Semi-Primitive: Travel principally on system trails; low incidence of encounters with others; evidence of past human use not essential part of social setting; repeated use of designated camp site.
	Primitive: Travel cross-country or by low density trail system; high degree of solitude.
	Pristine: No trails; high degree of solitude for both people and wildlife; no perceptible evidence of past human use.
Wildfire	Any wildland fire that requires a suppression action. This includes all fires not meeting the requirements of a prescribed fire.
Window	A short corridor that provides for critical access to area that may be subsequently designated for corridor use.
Woodland	Plant communities with a variety of stocking comprised of various species of pinyon pine and juniper, typically growing on drier sites.

GLOSSARY (Amendment 12)

Adaptive Management	A strategy whereby planning efforts respond to changing conditions.
AMPs	Allotment Management Plan.
Base-for-Exchange	A term used to identify National Forest Lands that meet Forest Plan direction for disposal into private or other ownership.
Best management Practices (BMP)	Management practices that have been developed over a period of time and have been determined to be the best course of action to achieve management objectives.
Carrying Capacity	The density of wildlife or people that an area is capable of sustaining without deterioration to the natural or social environment.
Commercial Touring Company	For this discussion, a for profit company that is allowed to use National Forest Lands for recreational and educational touring activities through a permit process. There are also touring companies that do not use National Forest lands, but instead take visitors to private lands or only on State Highways or County roads. Touring operators who do not use Forest lands do not need a permit from the Forest Service.
Cultural Site	See Heritage Resource.
Developed Camping	Camping that occurs in a setting with constructed facilities such as roads, picnic tables, drinking water and toilets, often resulting in concentrated use.
Dispersed Recreation	Recreation of various kinds that occurs generally throughout a large area and is not confined to a specific place. Scattered, individual outdoor recreation activities normally not identified with developed facilities or areas of group concentrations.
District Interpretive Strategy	A strategy that sets out the goals and objectives for interpretation and suggests methods for accomplishing District interpretation.
Ecological Process	Dynamic interaction of biota with the landscape that is considered ``natural'' and free of human influence.
Ecosystem	The system formed by the interaction of a group of organisms and their environment.
Fee Demonstration	A Federal program that allows the Forest to charge new use fees or increase use fees for specific visitor sites on National Forest lands for 1997 through 1999. The fees must support added facilities or services to the public. Of the new or additional fees, 80% is returned to the site or project to support visitor services.
Environmental Assessment	A document required by the National Environmental Policy Act to disclose the effects on Federal lands of a proposed action and alternatives.
Goal	A concise statement describing a desired end result and normally expressed in broad general terms.

Guideline	Describes a preferred or advisable course of action; desired policy or conduct.
Heritage Resource	The physical remains of past human cultures and places or sites of importance in human history or prehistory.
Inspirational Landscape	Land forms or sites that have special meaning to people, motivating them to meditate or admire in quiet contemplation.
Interpretation	An explanation about cultural or natural resources for the enjoyment or education of the public.
Issue	A point of debate or disagreement.
Land Exchange	The conveyance of non-Federal land or interests to the United States government in exchange for National Forest System.
Leave-No-Trace	A concept in wilderness recreation ethics in which the user keeps his/her impacts on the land to a level at which future visitors would not be able to detect any sign that the area has been visited previously.
Limits of Acceptable Change (LAC)	A recreation management concept describing a threshold level that, if crossed, creates an unacceptable change in conditions or benefits.
Management Area	An area with common direction throughout that differs from neighboring areas.
National Historic Register	A listing (maintained by the National Park Service) of areas that have been designated as having historical significance.
NEPA	The National Environmental Policy Act, a policy to encourage productive and enjoyable harmony between people and their environment.
Non-motorized	Overland travel or recreation that does not use motorized vehicles or equipment.
Noxious Weed	**Noxious weed is a legal term applied to plants regulated by Federal and State Laws, such as plants designated as noxious weeds by the Secretary of Agriculture or by the responsible State official. Noxious weeds generally possess one of the more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, a carrier or host of serious insect or disease, and being not native or new or not common to the United States or parts thereof. (Forest Service Manual 2080.5, Federal Noxious Weed Act of 1974, PL 93-629, as amended.)**
Objective	Describes measurable desired resource conditions, or ranges of conditions, intended to achieve Forest Plan goals.

Off-highway Vehicle	Any motor vehicle when operated off of highways on Forest lands.
Off-road Travel	Overland travel with motorized or nonmotorized vehicles off of established, cleared and defined routes capable of accommodating such a vehicle.
On-site Stewards	Persons present at a site to protect and care for that site.
Primitive ROS Class (P)	Cross country or primitive trail access only, very few encounters with other people, low to non-existent management presence, facilitates only for site protection - not for comfort, very high degree of naturalness. Wilderness is typically managed for primitive attributes. Some exceptions are Bell Rock and Wilderness adjacent to private lands.
Pristine WOS	A landscape condition where there are no signs of human development; an entirely natural condition.
Proposed Action	The project, activity or action proposed by a Federal agency that is the subject of an environmental assessment.
Quiet Area	An area that is seasonally closed to motor vehicles to provide a non-motorized experience for hunters and to protect wildlife habitat. During the closure, people can access the area on foot, by bicycle or on horseback.
Recreation	To create anew, restore, refresh; refreshment of strength or spirits; an activity that is generally pursued for refreshment or diversion.
Recreation Fire	A fire for recreational purposes such as a campfire. An open fire used to enhance the picnicking or camping experience.
Recreation Opportunity Spectrum (ROS)	A land classification system that categorizes National Forest land into six classes, each defined by its setting and the probable recreation experiences, benefits, and activities it affords.
Redrock Area	See Sedona/Oak Creek Ecosystem.
Redrock Landscape	See Sedona/Oak Creek Ecosystem.
Research Natural Area (RNA)	An area set aside by a public or private agency to preserve a representative sample of an ecological community, primarily for scientific and educational purposes. Commercial exploitation is ordinarily not allowed and general public use is discouraged. Generally over 300 acres in size.
Roaded Natural ROS Class (RN)	Paved or gravel all-weather roads, moderate number of encounters, moderate management presence, rustic facilities, moderate to high degree of naturalness. The gateway along Highways 179, and portions of the Red Cliff MA, are typical of Roaded Natural areas.
Rural ROS Class	Less development than in Urban, typical of agricultural areas. Paved or gravel all-weather roads, moderate to high numbers of encounters with other people, high management presence, facilities are generally more rustic, but common and convenient, moderate degree of naturalness. Areas such as the Neighborwoods or pockets of development in Oak Creek Canyon, such as Garlands store area, are examples of Rural areas.
Scoping	A public involvement process for identifying the significd to identify National Forest lands that meet Forest Plan direction for disposal into private or other ownership.
Sedona/Oak Creek Ecosystem	The area of land generally surrounding Sedona and bounded on the west by Sycamore Canyon, on the east by I-17, on the north by the Mogollon Rim and on the south by Beaverhead Flats. The ecosystem includes both National Forest and private lands. Generally synonymous with the Sedona/Oak Creek Planning Area.

Semi-primitive	A recreation setting characterized by few and/or subtle modifications by man and with high probability of isolation from the sights and sounds of people.
Semi-primitive Motorized ROS Class (SPM)	Primitive roads and trails, low number of encounters with other people, subtle and limited management presence, rustic facilities constructed of native materials, high degree of ``naturalness" with infrequent evidence of human activity. Most of the Savannah MA is typical of SPM setting.
Semi-primitive Non-motorized ROS Class (SPNM)	Trail access only - no motor vehicles, low number of encounters with other people, subtle and limited management presence, scarce rustic facilities constructed of native materials, high degree of naturalness with infrequent evidence of human activity. The non-roaded areas in Transition and northwest of House Mountain in the Savannah MA are typical of SPNM settings.
Social Pathway	An unofficial trail created by continuous use. Social pathways result from short-cutting or from poorly marked or inadequate official trails.
Standard	limitations on management activities that are within the authority and ability of the agency to meet or enforce. A principle requiring a specific level of attainment; a rule to measure against.
Stewardship	Responsibility for caring for the land.
System Road or Trails	Roads and trails that have been officially adopted by the Forest Service, properly planned and designed, and receive routine maintenance.
Urban ROS Class (U)	Paved roads, many encounters with other people, high management presence and facilities, low degree of naturalness. An Urban designation is found in areas such as the City of Sedona or Village of Oak Creek.
Urban Interface	The land at the transition between urban development and undeveloped public land.
SFWS	United States Fish and Wildlife Service.
Wilderness	Undeveloped Federal land designated under the 1964 Wilderness Act that retains its primeval character and influence without permanent improvements or human habitation. Wilderness is protected and managed to pre serve its natural conditions.
Wilderness Portal	An access point, such as a trailhead, into a designated Wilderness.
WIS	Wilderness Information Specialist.
WOS	Wilderness Opportunity Spectrum.