United States
Department of
Agriculture

Forest Service

Pacific
Northwest
Region

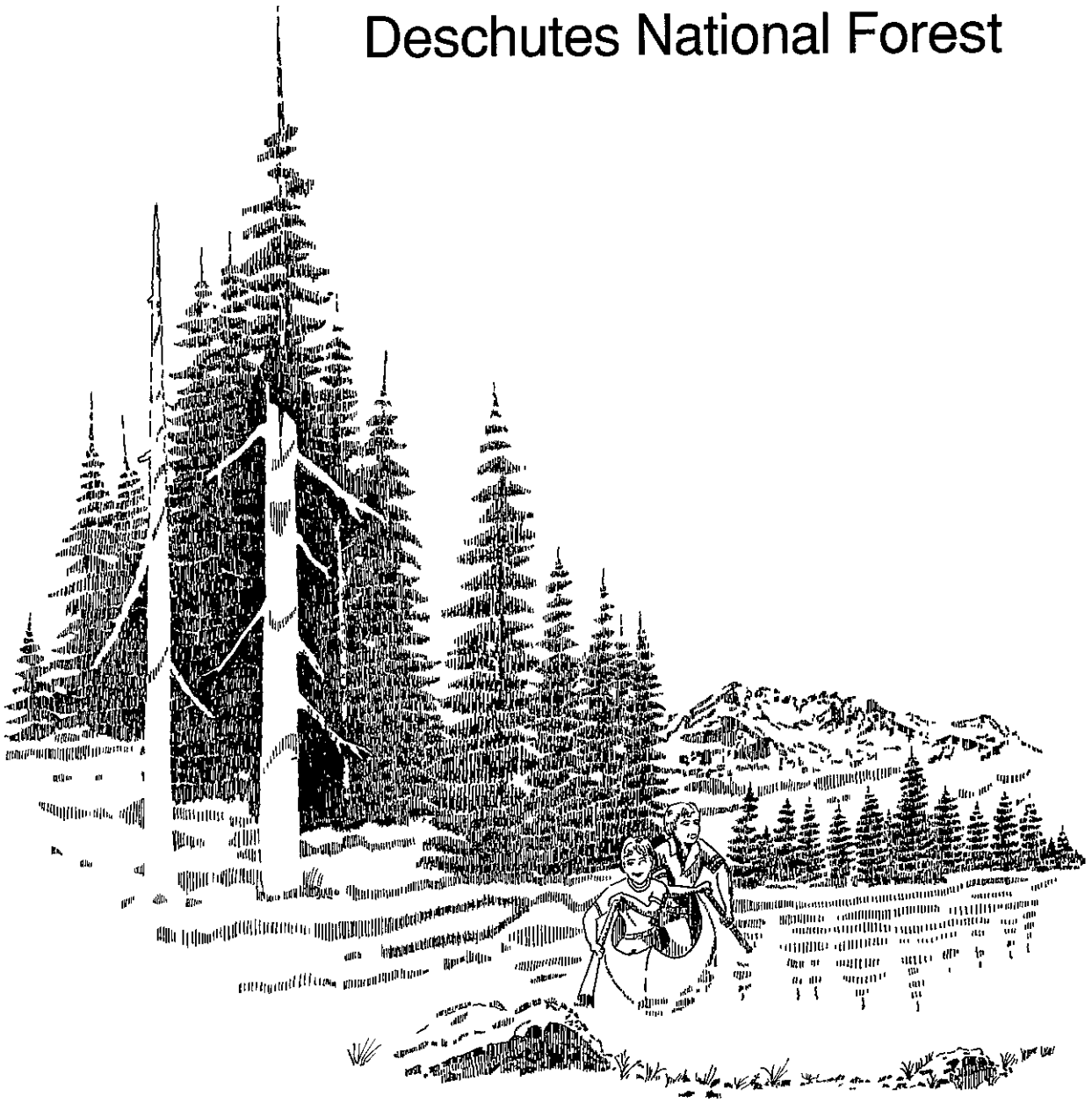
**Deschutes
National Forest**

Summary

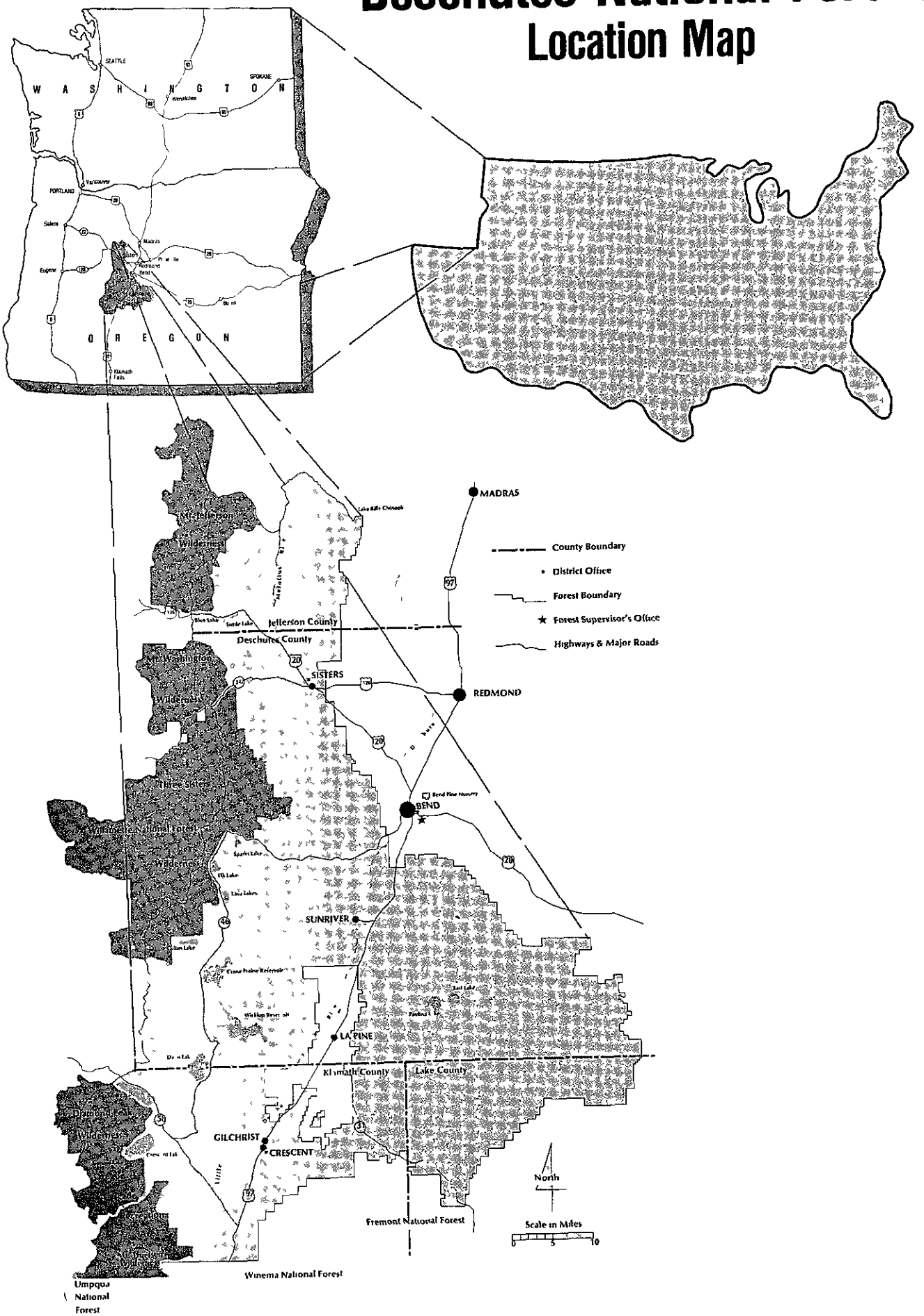
Final Environmental Impact Statement

Land and Resource Management Plan

Deschutes National Forest



Deschutes National Forest
Location Map



Summary

Introduction

This Final Environmental Impact Statement completes the process of evaluating different ways to manage the Deschutes National Forest for the next 10-15 years. After making changes in response to public comment on the DEIS and including new information, an expanded version of the DEIS Preferred Alternative accompanies this document as the Forest Plan

This is a brief summary of the FEIS, which addresses the most important central questions raised about Forest management. These Issues, Concerns, and Opportunities were determined by a more than 10 year solicitation of opinion from all sectors of the public with an interest in the Forest.

Changes Between Draft and Final

The Draft Environmental Impact Statement and Land and Resource Management Plan for the Deschutes National Forest was published in of 1986. A major objective was to elicit response, on the DEIS, from readers. More than 1,600 individuals, organizations, businesses, and agencies accepted this invitation.

Response ranged from form letters supporting one or another management alternative to detailed evaluation of many portions of the document. Appendix J summarizes this response and directly addresses comment which was considered "substantive". Many of these responses resulted in changes to the EIS and Forest Plan. The most significant of these changes are described below.

The most significant differences between the Draft and Final EIS are the decision not to implement a departure schedule for timber harvest, the addition of an emphasis on uneven-aged timber management, and the addition of the Metolius Conservation Area as a special area with special management considerations. The most important incorporation of new information was use of a new timber inventory, which showed that there is a significantly smaller volume of Ponderosa pine on the Forest than earlier inventories had indicated.

The decision not to pursue a departure harvest schedule, one which would have accelerated timber removal during the first decade and reduced it in later decades, was based on public input and reappraisal of the mountain pine beetle epidemic. Departure was intended to contend with the epidemic by rapidly removing beetle killed lodgepole pine, reducing the spread of infestation. As the epidemic ran it course, however, that strategy became less appropriate.

The new emphasis on uneven-aged timber management was in response to a very large expression of preference by the public and some sectors of the timber products industry.

The FEIS includes a number of new management areas In the DEIS, the northern spotted owl, bald eagles, and ospreys were included in a single management area Because the habitat requirements of these species are different, they were separated in the FEIS

In response to an expression of intense concern about scenic quality, another management area, Front Country, was created It is intended to protect the appearance of one critical portion of the Forest. Congress, in 1988, passed the Oregon Omnibus Wild and Scenic Rivers Act. It incorporated a number of rivers on the Forest into the national Wild and Scenic River System A management area was created to provide direction for activities along these streams Six more rivers have been identified as eligible for consideration, these are identified in the FEIS.

A great deal of public concern, regarding management of the Metolius Basin area of the Sisters District, led to the development of ten new management areas, which comprise the Metolius Conservation Area. These management areas are designed to enhance and protect this exceptional part of the Forest.

There was no specific provisions in the DEIS for managing elk. As a consequence of objections to this omission by hunting groups and the Oregon Department of Fish and Wildlife, elk management direction is now included in the Standards/ Guidelines.

There was no specific provisions in the DEIS for management of Riparian Areas. As a consequence of public input, Riparian standards/guidelines have been developed and Best Management Practices (BMPs) have been adopted to maintain or protect water quality.

Description

The Deschutes National Forest

This 1.6 million acre National Forest extends from the eastern crest of the Cascade Mountains into high desert country east of Bend, Oregon It is best known for a view, from Bend, and its environs, which encompasses eight major mountain peaks They are, from north to south, Mt. Jefferson, Three Finger Jack, Mt. Washington, North Sister, Middle Sister, Brokentop, South Sister, and Mt. Bachelor. This panorama is exceedingly dramatic evidence of the tumultuous force which shaped the area, volcanism. The array of volcanic features on and around the Forest have attracted viewers and naturalists for years.

The Metolius Basin is a very special place to many people. A local group proposed the establishment of a National Conservation Area which encompassed approximately 154,000 acres on the Sisters District. The porposal received considerable public attention including an editorial in the Oregonian Newspaper and a letter to Dale Robertson from the entire Oregon Congressional Delegation

The Forest is also distinguished by its lavish, spring-fed system of lakes and streams which refresh an arid, verging into desert country. These waterways support one of the most renown fisheries in the nation. The Forest is occupied by 350 species of fish and wildlife. It is particularly noted as a refuge for two greatly valued and beleaguered birds, the bald eagle and osprey.

Elevations range from 2,000 feet at Lake Billy Chinook to 10,497 feet at Mt. Jefferson, the second tallest peak in Oregon. The Diamond Peak, Mt. Washington, Mt. Jefferson, Three Sisters, and Mt. Thielsen Wildernesses occupy 181,300 acres of the Forest, in addition there are 42,700 acres in the Oregon Cascade Recreation Area

In addition to providing a celebrated scenic skyline, the Cascades empty the incessant storms clouds of western Northwest. Weather on the Forest is predominantly sunny, which also attracts visitors from Portland, Seattle, and the Willamette Valley.

River rafting, canoeing, hiking, camping, and mountain climbing are summertime recreational pursuits In the winter, skiers converge on Mt. Bachelor, the most popular downhill skiing area in the Northwest, and negotiate hundreds of miles of cross country skiing trails Open and level terrain on much of the Forest is prized by snowmobile operators.

In all, more than seven and one quarter million visits are made with the outdoors on the Forest each year.

Timber remains a central component in the Central Oregon economy. Stands of Ponderosa pine, lodgepole pine, mountain hemlock, Douglas fir, white fir, grand fir, and Shasta red fir grow on 71 percent of the Forest.

Much of the Forest was previously industrial forestland land which was harvested between 1916 and 1955.

A mountain pine beetle epidemic in lodgepole pine stands on the Forest began in the 1960s. By 1988, 60 percent of all lodgepole trees larger than 6 inches in untreated stands had been killed. The timber management program was adjusted to minimize the environmental and economic impact of the development.

Rangeland provided by the Forest is also economically significant. The 741,000 acres of rangeland provide 29,000 animal unit months of cattle and sheep grazing in 1984.

Volcanism, particularly the explosion of Mt Mazama 6,000 years ago, is the most important single factor in the area's soil profile. Ash ejected by the

explosion which created Crater Lake was deposited across almost all of the Forest. Spectacular geologic events have occurred as recently as 1,300 years ago, when obsidian flowed from Newberry Volcano. Newberry, 500 square miles in size, is the product of volcanic activity during the last ice age.

Other geological features include Lava Lands, an interpretation of the Lava Butte Volcano, the Lava Cast Forest, where tree molds or casts were formed by molten lava flowing through a timber stand, and Lava River Cave, one of the longest lava tube caves in the Northwest.

The developers of geothermal energy have expressed keen interest in the potential of the area around Newberry Crater. Such development may be constrained by the proposed Newberry Crater National Monument.

Most of the Forest is in Deschutes County but the northern portion is in Jefferson County and it occupies small portions of Klamath and Lake Counties to the south.

The largest cities in the area are Bend and Redmond. Madras, Sister, LaPine, Crescent, Sunriver, and Gilchrist are other important population centers. Forest headquarters and two Ranger District offices are in Bend and there are also Ranger Districts in Crescent and Sisters. The Redmond Air Center, located at the Redmond Airport, and the Bend Pine Nursery are administered by the Forest Supervisor.

Principal highways serving the area are U.S. Highway 97, a north-south route, and U.S. Highway 20, an east-west route. The principal communities in the area are served by a bus line and commercial airline service is available at Roberts Air Field near Redmond. The only access to passenger railroad travel is in Chemult, 70 miles south of Bend.

Purpose and Need

The purpose of this Environmental Impact Statement is to provide decision makers with an environmental disclosure sufficiently detailed to make a selection from the range of management alternatives. Of equal importance, the compilation of information about the Forest facilitated broad and active public participation in the planning process.

Management of the Forest is considered a major federal action which will have a significant effect on the quality of the environment. The National Environmental Policy Act of 1969 (NEPA) requires preparation of an environmental impact statement (EIS) for actions of this magnitude. Regulations for complying with NEPA (40 CFR 1500) were promulgated by the Council of Environmental Quality.

The FEIS includes, in addition to a description and comparison of management alternatives, information about the physical, biological, and social attributes of the Forest, the Affected Environment. It also discloses the costs and environmental effects of implementing each alternative.

The planning process includes these steps:

* Identification of Issues, Concerns, and Opportunities;
* Inventory of Forest resources;
* Estimate of demand for these resources and the capability of the Forest to meet it.
* Development of a range of management alternatives.
* Estimation of the environmental, economic, and social effects of implementing each alternative.
* Comparison and evaluation of alternatives.
* Selection of the Preferred Alternative.
* Publication of the Draft Environmental Impact Statement and Forest Plan.
* Evaluation of public comment. Revisions to the DEIS based on public comment, new information and refined analysis.
* Preparation and publication of FEIS, Forest Plan, and Record of Decision.

* Implementation.

* Monitoring and, when necessary, Forest Plan ammendments and revision.

The Final Environmental Impact Statement is an analysis of environmental effects of the proposal. It will be the basis for the final decision contained in the Record of Decision.

Interactions

Just as every element in a natural environment is embedded in a web of connection, so are issues and concerns about Forest management. The satisfaction of one set of expectations can compliment or conflict with other demands. Rarely is there an activity which has no effect on other activities or environmental conditions.

The treatment of beetle killed lodgepole pine can benefit producers of wood pulp and chips and collectors of fuel-wood, for example, at the expense of visual quality It can also create conditions favorable to the production of forage for livestock, deer, and elk.

More controversially, the harvest of old growth Ponderosa pine is extremely important to the economic well-being of Central Oregon mills. But the retention of a representative amount of these impressive old trees is at the top of the agenda of environmentalists and the developers of recreational properties.

One of the most complicated areas of give and take is the accommodation of different kinds of recreation. Hikers, horseback riders, off-highway vehicle operators, mountain bikers, snowmobilers, and cross country skiers strongly defend their prerogatives and must often be separated. Decisions about where and how much must be based on careful consideration of physical impacts on the trail system, riparian areas, and wildlife.

Roading areas which are currently roadless could permit wider distribution of timber harvest and increase the amount of land available for geothermal development. It would also reduce the amount of semi-primitive recreation of the Forest and could conflict with the habitat requirements of sensitive wildlife species.

Issues, Concerns, & Opportunities

The range of issues, concerns, and opportunities considered in this document was determined by expressions from the public and land managers (Forest Service and other) and by laws, regulations, and policies for public land management Response to these demands and requirements can vary widely but must acknowledge the physical, biological, budgetary, and legal limits of Forest management.

Process for Identifying of ICOs

The opinions of individuals, governmental agencies, private industry, Native Americans, and environmental and recreation organizations were actively solicited. Public meetings, newsletters, contacts with the news media, and personal contacts between Forest Service employees and individuals and groups were some of the methods used.

Thirty-one issues were identified during the preparation of a Draft Environmental Impact Statement which was released in November of 1982. Due to the imposition of new planning requirements, this DEIS was withdrawn and another prepared

During the DEIS revision, each of the 31 issues was reevaluated. These three questions were asked: 1) Is there high or long-term public interest? 2) Are future options being foreclosed? 3) Are large parcels of land involved? Using this criteria, issues such as those dealing with electronic sites, cinder pits, coordination with private landowners, and recreational residences were dropped.

Eighteen ICOs are included in the Final Environmental Impact Statement. Following an extensive review of comments from the public, one was eliminated and one added to the version presented below. An ICO having to do with meeting Resource Planning Act targets was dropped because of slight interest expressed by the public. However the analysis of the ability of the Forest to meet RPA targets is contained in the FEIS.

Because of a very large number of requests, an ICO addressing uneven-aged timber management was added.

Forest planning involves the analysis of different alternatives. A central test of an alternative's adequacy is how well it addresses the most important planning problems. One criteria for the inclusion of an ICO is that it is treated differently by the management alternatives. The degree to which each alternative responds to all of the ICOs is indicated in Figure S-2, below.

A detailed description of the development of ICOs is given in Appendix A of the Plan.

Selected Issues, Concerns, & Opportunities

1. - How should the Forest consider local and regional economies, lifestyles, and population levels in managing Forest lands?

The economy and lifestyles of many local and regional citizens and businesses are tied to the Forest in many ways Both tourists and permanent residents are attracted to the wide variety of recreation opportunities available on the Forest Most often they come to hunt, fish, ski, camp, or engage in water sports.

The Forest also provides a significant portion of raw material for the timber products industry in Central Oregon and elsewhere. The livelihood of a considerable portion of the local population is dependent on this resource. Many people in the area use wood as their primary source of home heating and gathering firewood has become part of the Central Oregon lifestyle.

Most of the more specific issues and concerns below are related to this overall question about economics and the quality of life.

Measures of Responsiveness: Degree to which the Forest contributes to both the timber products and tourism industries.

Concerned Interest Groups: Both industries mentioned above, environmental groups, recreation associations, school districts and education associations, local and state government, and many individuals.

2. - How much timber should be harvested and on what schedule?

There is strong concern about management which would seriously reduce the Forest's timber base, diminishing an important element in the local economy.

The timing of timber harvest is also of concern. How rapidly should remaining stands of mature and old-growth timber be harvested and converted to younger managed stands?

Payments to counties from timber sale receipts are also contingent on the level of timber harvest.

Measure of Responsiveness: *Volume of timber* offered for sale.

Possible Conflicts: Visual quality, dispersed and intensive recreation, wildlife habitat, water quality, soil productivity.

Concerned Interest Groups: Timber products industry and businesses served by the multiplier effect of timber product employment, local and State government, and school districts.

3. - What role should uneven-aged timber management play in future harvest plans?

An even-aged stand is occupied by trees which are similar in size and age They can occur naturally, as with lodgepole pine and mountain hemlock, or as a result of fire or clearcutting.

Uneven-aged stands have trees of various sizes and ages. They occur naturally but can also be the result of removing individual and small groups of trees instead of clearcutting

There are obvious differences in the appearance of even and uneven-aged stands. A considerably number of responses to the DEIS favored emphasis on uneven-age management to enhance recreation, visual quality, and wildlife habitat.

On this Forest, such management would primarily occur in stands of Ponderosa pine and mixed conifers. Because of the volume of requests for an emphasis on uneven-aged management, this issue was added to the earlier list.

Measure of Responsiveness: Number of acres upon which uneven-aged timber harvest methods are used

Possible Conflicts: Soil productivity, economic efficiency.

Concerned Interest Groups: Timber industry, recreation associations, and environmental groups.

4. - How should the Deschutes, Winema, and Fremont National Forests manage the lodgepole pine stands which are infested with mountain pine beetles and stands which are susceptible to infestation?

The management of approximately 500,000 acres of timberland affected by the mountain pine beetle epidemic is being coordinated between the three National Forests. Timber on most of these lands is dead, dying, or susceptible to attack. Timber on approximately 225,000 acres of the Forest is expected to be killed by 1995.

The beetle epidemic has created an abundance of firewood and has been a catalyst in the conversion to wood stoves for home heating. Questions raised by the infestation include: 1) How rapidly should beetle killed lodgepole be harvested? 2) How much should be made available to personal and commercial firewood gatherers and how much to the timber industry? 3) How will the effort to treat and salvage lodgepole affect the amount of Ponderosa pine scheduled for harvest? 4) How will the management of big game habitat be affected by reductions in hiding cover resulting from the removal of dead and dying trees? 5) How will visual quality and recreation be affected by the treatment of stands of dead and dying trees along heavily used roads and around campgrounds?

Measures of Responsiveness: Acres of beetle kill salvage harvested. Acres of threatened stands thinned.

Possible Conflicts: Visual quality.

Concerned Interest Groups: Forest Service silviculturalists and fire control officers, the timber products industry, recreation associations, environmentalists.

5. - How should the Forest meet future demands for fuelwood?

Nearly 60 percent of Central Oregon dwellings use woodstoves for heating. Most of this fuelwood is lodgepole pine. In the DEIS, given 1986 levels of consumption of fuelwood, regular timber sales, and the mountain pine beetle epidemic, it was estimated that easily accessible fuelwood could be gone by the late 1990s. In addressing this issue, it was assumed that demand would remain at about the 1987 level and that fuelwood cutters would be willing to substitute other tree species for lodgepole

Demand for fuelwood has dropped in the last few years. The 1986 harvest level was about 60,000 or 29 million board feet In 1987 about 20 million board feet of personal use fuelwood was harvested. Harvest dropped to about 12 million board feet in 1988. The Forest will be able to supply adequate fuelwood for personal use if the current trend continues.

The management of fuelwood has implications for wildlife In addition to the question of big game hiding cover, mentioned above, firewood collection can also jeopardize dead trees providing habitat for cavity nesting species The current drop in harvest will lessen the chance for conflict with other resources.

Measure of Responsiveness: Cords of wood available to individuals and commercial fuelwood operators.

Possible Conflicts: Wildlife, visual quality, air quality

Concerned Interest Groups: People heating homes with woodstoves, commercial fuelwood operators, environmental groups, state Department of Environmental Quality (air pollution)

6. - How should the Forest provide for intensive recreation, now and in the future?

There are many types of recreation which require established sites or facilities. Developed sites on this Forest range from the Mt. Bachelor Ski Area to small isolated picnic grounds. The demand for sites to accommodate camping, boating, and other outdoor activities continues to grow. An

unusually large number of destination resorts are located adjacent to the Forest and attract many people to the Forest.

Addressing this issue involves deciding which portions of the Forest should be developed for recreation and how large they should be.

Many recreationists are drawn to lakes, rivers, and streams, where developments can result in water pollution and a reduction in the quality of riparian wildlife habitat. Bald eagles are osprey are often drawn to these areas and conflicts can occur. Recreation facilities can also reduce visual quality Appropriately designed and managed development, however, permits enjoyment of these sites by many more people.

The issue is strongly tied to both the lifestyle and the economy of Central Oregon The economic implications are complex. Tourism is a mainstay of the local economy but so is the timber products industry, which can be affected by the amount of land allocated to developed recreation.

Measure of Responsiveness: Degree to which the demand for intensive recreation is met.

Possible Conflict: Wildlife, water and visual quality.

Concerned Interest Groups: Recreation and tourism associations, local and state government.

7. - How should the Forest meet an expanding demand for dispersed recreation?

Hiking, rafting, fishing, snowmobiling, sailing, hunting, driving for pleasure, caving, and mountain climbing are all popular dispersed recreational activities.

Some dispersed recreation occurs almost exclusively in Wilderness. Cross country skiers and snowmobilers, however, often use the same areas and conflicts occur. Addressing this issue involves accommodating the full range of dispersed recreation while minimizing conflict.

Dispersed recreation away from roads, campgrounds, and other facilities, is called undeveloped. It occurs primarily in Wildernesses, the Oregon Cascades Recreation Area and roadless areas. The amount of undeveloped recreational opportunities available on the Forest will depend on how ICO No. 9 (roadless areas) is addressed.

Measure of Responsiveness: Acres of the Forest allocated to Primitive and Semi-Primitive Recreation.

Possible Conflict: Timber production.

Concerned Interest Groups: Recreation and environmental organizations.

8. - How can scenic beauty on the Forest be maintained?

The scenic beauty of lands in and around this Forest is highly valued. Views of volcanic peaks along the Cascade Crest, large Ponderosa pine trees along travel routes, lakes and free flowing rivers, attract hundreds of thousands of people annually.

Most people prefer to view natural appearing landscapes rather than those dominated by the sight of timber harvest. Of particular importance are views from main travelways, lakes, and major campgrounds.

Identifying areas of high scenic value and determining how they should be managed is the planning problem this issue poses.

Measure of Responsiveness: Number of acres where inventoried Visual Quality Objectives are met.

Possible Conflict: Timber production.

Concerned Interest Groups: Recreation and tourism associations, environmental groups, local and state government.

9. - How should roadless areas be managed?

Passage of the Oregon Wilderness Act in 1984 released 145,142 roadless acres on the Forest from Wilderness consideration during this Forest planning period. These areas can be managed in a variety of ways, including some which involve road construction.

Numerous people, citing the unique values of some of these areas, have strongly favored leaving

them roadless Some have timber, geothermal, and motorized recreational potential which would require road construction to develop.

Measure of Responsiveness: Number of acres available for roadless recreation.

Possible Conflicts: Timber production, motorized recreation.

Concerned Interest Groups: Recreation and environmental groups.

10. - How should the Forest identify and protect cultural resources?

More than 1,000 cultural resource sites have been located and recorded by the Forest's inventory program. Most are prehistoric Indian campsites Each year, more than 50 sites are added. Records indicate that approximately 200 sites are destroyed each year by illegal excavators. Known sites are either protected from project impacts or scientifically tested and documented The interpretation of prehistoric and historic sites is currently being emphasized.

Forest visitors as well as residents of the Bend area have expressed considerable curiosity about the area's human past. The volcanic landscape and evidence that humans were here immediately following the last great ice age, almost 13,000 years ago, are of great interest. This creates opportunities for increased interpretive facilities to enhance recreation and further research into the prehistory of Central Oregon. It also attracts those interested in the resource for its commercial value; artifact theft is a constant and serious concern.

Protection of the resource is an issue because this record of human history is vulnerable and non-renewable. Much has already been destroyed and the loss cannot be permitted to continue unabated.

Measure of Responsiveness: Identification of new sites and protection of known sites.

Possible Conflict: Timber production, road construction, siting of developed recreation facilities, energy and minerals development.

Concerned Interest Groups: Educational institutions, recreationists, Native Americans.

11. - How should the Forest manage habitat for threatened, endangered, or sensitive species?

Twenty-five pairs of bald eagles, which are listed by the USDI Fish and Wildlife Service as a threatened species in Oregon, have been found on this Forest. The habitat could potentially support 45 pairs. Nesting and feeding areas are important habitat for eagles

The Forest is also occupied by 15 pairs of spotted owls, listed as threatened by the State of Oregon. Addressing this issue involves determining how many acres of old growth must be provided as habitat for eagles and owls.

The Peregrine falcon, also listed as an endangered by the Fish and Wildlife Service, has been sighted on the Forest but no recent nesting sites have been found.

Eleven plants classified by the Regional Forester as sensitive species are known to exist on the Forest. The presence of nine others is suspected.

Measure of Responsiveness: Amount of habitat meeting the requirements of sensitive wildlife species

Possible Conflict: Timber production, intensive recreation.

Concerned Interest Groups: Wildlife agencies, recreation and environmental groups.

12. - What should wildlife populations be?

The public, Forest managers, and the Oregon Department of Fish and Wildlife are concerned about the population of several wildlife species. These include mule deer, which number approximately 20,300; elk, 1,000 to 1,200; and osprey, 125 pairs. Other species of concern are goshawks, pine marten, and woodpeckers

The issue is addressed by placing different emphasis on maintaining or improving required habitat. Measures taken to improve habitat can include timber harvest but they can also result in a reduction in potential timber production. Wildlife

is an important element in Forest recreation but wildlife protection can restrict recreational activities in some areas.

Measure of Responsiveness: Amount of suitable habitat provided for targeted wildlife species.

Possible Conflict: Timber production, intensive and dispersed recreation, mineral and energy development.

Concerned Interest Groups: Wildlife agencies, recreation and environmental groups.

13. - How much old growth should be retained on the Forest?

Old growth is important to many people for reasons including concern about wildlife, the Forest's gene pool, and aesthetics. The intrinsic value of growth has been stressed, as well as the need to preserve options for future Forest management. In addition to the amount of old growth, this issue deals with its distribution.

Providing habitat for spotted owls will preserve some old growth, which will also be retained in the Old Growth Management Area, dispersed recreation areas and other portions of the Forest *when timber harvest is not scheduled.*

Measure of Responsiveness: Acres of old growth retained and the degree to which its distribution meets the needs of wildlife, genetic diversity, and recreation.

Possible Conflict: Timber production.

Concerned Interest Groups: Wildlife agencies, recreation and environmental organizations

14. - What areas on the Forest should be made available for geothermal leasing and development?

The Forest is thought to contain some of the highest potential for geothermal development of any area in the Western United States. Approximately 350,000 acres have already been leased.

The Newberry Crater is designated as a Known Geothermal Resource Area (KGRA). Hot fluids have been located near the surface within the Crater, which is also a National Natural Landmark and an important recreation area. There are campgrounds and resorts located near two lakes in the Crater and the area is also a popular for winter sports, snowmobiling and cross country skiing.

There is an active bald eagle nesting territory in the Crater and several unique geological features, including spectacular obsidian flows.

Other portions of the Forest which have not been leased may have geothermal potential. Addressing this issue involves determining where and under what conditions leases should be issued and how recreational, visual, wildlife, water quality, and other resource values are to be protected.

Geothermal development is also related to the roadless area issue, because some land with high geothermal potential is located in these roadless areas.

Measure of Responsiveness: Acres made available for geothermal exploration.

Possible Conflict: Primitive recreation, visual quality.

Concerned Interest Groups: *Energy industry,* utilities, local and state government.

15. - How should the Forest manage key roads, particularly lower standards roads that cross the Cascade Crest?

Proposed improvements to the Windigo Pass, Waldo Lake, Irish-Taylor, and Todd Lake to Three Creeks Lake Roads have been the center of controversy in the past.

All these roads, which could provide more direct routes to points west of the Cascades, are adjacent to Wildernesses, the Oregon Cascade Recreation Area, and roadless areas The issue addresses a conflict between advocates of improved access and those favoring the existing, remote character of these areas.

Measure of Responsiveness: Depending on a judgment about the merits of individual cases, degree to which access is improved or the remote character preserved.

Possible Conflict: Access, dispersed recreation, wildlife.

Concerned Interest Groups: Recreation and environmental groups, local and state government.

16. - How should the Forest protect vegetation from damage by pests?

Pesticides currently used on the Forest include big game repellent and strychnine alkaloid. The deer repellent is made of eggs and is used to protect newly planted trees on approximately 5,000 acres annually. The strychnine is applied underground on about the same amount of land where gophers would otherwise inflict heavy damage to new trees.

Prior to a court order halting the use of herbicides, about 800 acres were treated annually to control vegetation.

Insecticides have not been used on the Forest in recent years and were not used against the mountain pine beetle during the current epidemic. Spruce budworms have been found on and around the Forest and pose a future threat.

Measure of Responsiveness: Effectiveness and economic efficiency pest control measures.

Possible Conflict: Environmental groups, water quality.

Concerned Interest Groups: Timber industry, environmentalists.

17. - How should the Forest manage its lakes, streams, and wetlands to prevent degradation?

Monitoring over the past 10 years indicates that surface water quality on the Forest is high This was included as an issue because of the great importance of water quality in maintaining high recreational values on this Forest.

Guidelines and management policies for activities along streamsides and lakes have prevented significant damage and riparian areas are in good condition. Some streams have small, localized instability problems.

Addressing this issue will involve remedial measures in these areas and maintaining water quality elsewhere on the Forest.

Measure of Responsiveness: Water quality and the condition of riparian areas.

Possible Conflict: Timber production, road construction, intensive recreation, minerals and energy development.

Concerned Interest Groups: Fish and wildlife agencies, recreation and environmental groups.

18. - To what extent should the Forest enhance or maintain soil productivity and control erosion?

Protecting long-term soil productivity is a central requirement in Forest management. Ground disturbing activities usually produce negative impacts on soils The magnitude depends on the nature and extent of the activity.

Soils on the Forest are generally resilient because of their volcanic origin and sandy nature. They are usually not erosive, do not compact easily and are uniform throughout large areas.

Problems can occur, however, when heavy equipment is used on slopes of greater than 30 percent, in areas with seasonally high water tables, and in easily compacted, fine textured soil.

The cumulative effect of repeated entry into some portions of the Forest can reduce soil productivity and the Forest's ability to produce a sustained yield of timber.

Measure of Responsiveness: Success of measures taken to minimize soil disturbance during management activities and recreation visitation. Acres of land with soil productivity problems which are rehabilitated

Possible Conflict: Timber production, road construction, intensive and dispersed recreation, energy and minerals development.

Concerned Interest Groups: Soil scientists, timber industry, recreation and environmental groups.

Management Areas

To meet the wide range of expectations for goods, services, and conditions, the Forest has been subdivided into 28 management areas. Each has a specific purpose but can also provide for other resources and accommodate additional activities. Differences in the amount of land allocated to each management area and the location of these allocations reveal the emphasis of the various management alternatives

Twelve management areas have been added since the DEIS was issued. Front Country was added due to public concern about scenic quality. Wild and Scenic Rivers was developed to address the situation of streams on the Forest. Ten management areas were added due to public concern over management of the Metolius Basin. The Eagle, Owl, and Osprey management areas were combined in the DEIS and have been seperated for the FEIS.

Management Area 1 - Special Interest

Goal: To preserve and provide for the interpretation of unique geological, biological, zoological, and cultural features for education, scientific study, and public enjoyment.

Facilities may be provided for public interpretation. These areas are designated by the Regional Forester.

Management Area 2 - Research Natural Areas

Goal: To preserve examples of naturally occurring ecosystems in an unmodified condition for research and education.

Natural features are preserved to provide an opportunity to study natural process and a baseline against which the effects of human activities can be measured. Research Natural Areas (RNAs) are also natural gene pool preserves.

Management Area 3 - Bald Eagle

Goal: To protect and manage habitat to enhance the carrying capacity of bald eagles.

Nesting and foraging areas are protected and enhanced. Large tree nesting sites will be continuously available and spaced to minimize territorial competition. Measures are taken to minimize human disturbance during the nesting season.

Management Area 4 - Spotted Owls

Goal: Manage habitat to enhance the carrying capacity for Northern Spotted Owls.

These areas are dedicated to northern spotted owls. Nesting and foraging areas are protected and enhanced. Mature and old-growth stands are managed to maintain nesting sites and spaced to minimize territorial competition. There is no scheduled timber harvest. Measures are taken to minimize human disturbance during the nesting season.

Management Area 5 - Osprey

Goal: Manage the habitat to enhance the carrying capacity for osprey.

Osprey habitat contains numerous trees and snags suitable for nesting. They are spaced to minimize territorial competition and measures are taken to minimize human disturbance during the nesting season.

Management Area 6 - Wilderness

Goal: To manage designated Wildernesses in compliance with the Wilderness Act of 1984.

Wildernesses are essentially unaltered and undisturbed by humans and primeval in character. Natural ecological processes operate with a minimum of interference by humans.

The Forest manages the eastern portions of the Mt. Jefferson, Mt. Washington, Three Sisters, and Diamond Peak Wildernesses, and the northern portion of the Mt. Thielsen Wilderness.

Management Area 7 - Deer

Goal: Manage vegetation to provide optimum habitat conditions on deer transition ranges.

Herbaceous vegetation will be is managed to provide a vigorous forage base with a variety of forage species available. Forage is established in selected areas where it is lacking and improved

where conditions are poor. Cover will be developed where it is lacking and needed to create a proper balance.

Livestock grazing, both sheep and cattle, will be permitted in association with range improvements, such as fences and water developments.

Management Area 8 - General Forest

Goal: To emphasize timber production while providing forage production, visual quality, wildlife habitat, and recreational opportunities for public use and enjoyment.

The conversion of unmanage timber stands to managed stands continues The aim is to create stands in a variety of age classes all of which utilize the growth potential of each site This is achieved by controlling stocking levels, maintaining satisfactory growth rates, protecting stands from insects and disease, controlling species composition, and regenerating stands which have realized growth potential.

Lands containing suitable forage in these areas are used by cattle, sheep, and big game. Grazing will be emphasized in some areas where structural improvements such as fences and water troughs may be constructed Prescribed burning or seeding may be used to improve forage.

Management Area 9 - Scenic Views

Goal· To provide visitors with scenic vistas representing the natural character of Central Oregon

Landscapes which are visible from selected travel routes and places which are frequently visited will be managed to maintain or enhance their appearance. Evidence of management activities will be inconspicuous.

Some views of distant peaks, unique rock forms, unusual vegetation, and other features of interest have been opened. Timber harvest is used to protect and improve the visual quality of stands now and in the future. Landscapes containing negative visual elements, such as skid roads, slash, or cable corridors, are rehabilitated.

Stands of Ponderosa pine with be managed to achieve and maintain visual diversity of stand densities and tree size. Large, old-growth pine will remain an important element. This includes individual trees of 30 inches and larger in diameter with deeply furrowed, yellowbark characteristics.

Management Area 10 - Bend Watershed

Goal: To provide water at a level of quantity and quality which will, with adequate treatment, result in a satisfactory and safe domestic water supply.

Timber is managed to provide healthy stands which pose the least risk of catastrophic fire and insect infestation. Existing water quality is maintained. Stream channels are in stable condition. Access for administration and dispersed recreation remains compatible with water quality objectives.

Management Area 11 - Intensive Recreation

Goal: To provide a full range of high quality recreation opportunities within a forest environment where the localized settings may be modified to accomodate large numbers of visitors.

Developed sites include facilities permitting outdoor recreation for those with few outdoor skills. Encounters between visitors are frequent. Activities often, but not always, involve motorized vehicles and boats

Management Area 12 - Dispersed Recreation

Goal. To provide a range of quality recreation opportunities in an undeveloped forest environment

The lands are in a predominantly unmodified condition and include many types of vegetation, terrain, and landforms. Encounters between visitors are infrequent Primitive facilities such as shelters and small camps, signs, and trails, are available.

While settings are natural, restrictions are less than those in Wildernesses. Motorized vehicles operate on low-standard roads and trails in some areas

Management Area 13 - Winter Recreation

Goal: To provide winter recreation opportunities in natural and modified forest environments.

Roads, vegetation management, and other developments needed to enhance winter recreation opportunities have been established Some winter recreational activities involved close contact with others but cross country skiing is more dispersed. Some areas are closed to motor vehicles.

Management Area 14 - Oregon Cascade Recreation Area

Goal. To conserve, protect, and manage in a substantially unmodified condition portions of the Forest included in the Oregon Cascade Recreation Area (OCRA).

Scenic, wildlife, and recreation values are emphasized Motorized vehicles are permitted in portions of the OCRA.

Management Area 15 - Old Growth

Goal: Provide old growth tree stands to: 1) preserve natural genetic pools; 2) provide habitat for associated plant and wildlife species; 3) contribute to biological diversity; and 4) maintain visual quality and the aesthetic pleasure these trees afford

Vegetation is managed to provide mature and overmature trees including snags, dead and fallen material and, in many locations, two or more canopy levels. Old growth is also an element in several other Management Areas.

Management Area 16 - Experimental Forest

Goal: To provide an area where field research activities are conducted while considering other resource values.

The Pringle Falls Experimental Forest on this Forest is administered by the Pacific Northwest Research Station. It is a field laboratory for experiments involving silvicultural practices in lodgepole and Ponderosa pine These include studies of timber harvest and soil moisture and the role of fire in natural ecosystems

Management Area 17 - Wild and Scenic Rivers

Goal: To protect and enhance the values for which several reaches of streams on the Forest were included in the National Wild and Scenic River System.

Scenic rivers are managed to maintain a largely undeveloped shoreline although these streams are frequently accessed by road. Adjacent to Recreation rivers, management activities are subordinate to the characteristic landscape. Segments of Wild river, all inside the Three Sisters Wilderness, are generally influenced only by natural processes.

Management Area 18 - Front Country

Goal: To maintain a natural appearing forested landscape on the slopes northeast of the Three Sisters and Tam MacArthur Rim which providing for timber management and other objectives.

There is a strong textural element in these landscapes and color contrasts are minimal Management activities have not resulted in shapes or lines that are conspicuously visible from viewer areas. Uneven-aged timber management is the preferred harvest method.

Metolius Conservation Area Management Areas

The Metolius Basin is truly unique in the quality and diversity of its natural resource and spiritual values. The River's headwaters well from the ground in scenic springs, ensuring pristine water quality and excellent fisheries Abundant rainfall and rich soils have combined to produce luxuriant forests of fir, cedar, larch and ponderosa pine which have contributed greatly to the demand for forest products locally and regionally. Big, yellow-barked ponderosa pine trees are a highlight of the Basin. The Metolius ecosystem provides habitat for a wide variety of plant and animal species.

The upper basin of the Metolius River is an inspiring forest setting. For decades people have found the Metolius to be a special place where they are relieved from the stresses of everyday life amidst a unique natural beauty that exists in few other places. In many families, a tradition of recreation use and love of the Metolius has been handed down over several generations.

Outstanding natural scenery exists throughout the Basin and attracts visitors who seek a variety of recreation pursuits. Black Butte has been a landmark since the first settlers arrived and continues today as a scenic beacon to travelers and residents. The Metolius is outstanding in the

abundance of its resources and depth of feeling with which they are held by all who visit this special place.

Recognizing these special qualities of the Metolius, and wishing to preserve its outstanding values for future generations, the Metolius Conservation Area is established in this plan. This 86,000 acre area encompasses Black Butte, the Metolius Basin between the wilderness boundary on the west and Green Ridge on the east, and the "Horn of the Metolius".

This part of the Deschutes National Forest is set apart and will be managed differently from other lands. The Metolius Conservation Area contains ten management areas, many of which are unique, each having a specific goal and theme which describes the direction for management in the foreseeable future. Detailed standards and guidelines written for each management area support the goal and theme. Any project or initiative undertaken in the Metolius Conservation Area must conform in design and application to the appropriate standards and guidelines.

Management Area 19 - Metolius Heritage

Goal: To perpetuate a unique ecosystem represented by large yellow-belly Ponderosa pine and spring-fed streams; one that is part of Oregon's heritage. Significant historical character is found in this area and should be perpetuated. This ecosystem is an integral part of the Metolius Basin as a whole, and should be managed with that consideration.

Management Area 20 - Metolius Wildlife - Primitive

Goal: To protect and perpetuate a predominantly unmodified natural environment where natural ecological processes can continue. To provide habitat for a wild variety of wildlife species, and to specifically maintain or enhance habitat for bald eagle and deer. To provide an opportunity for primitive dispersed recreation within this undeveloped forest environment.

Management Area 21 - Black Butte Scenic

Goal: To perpetuate the unique scenic quality of Black Butte.

Management Area 22 - Metolius Special Forest

Goal: To rehabilitate and sustain a healthy forest with an emphasis on timber production, while maintaining a near-natural appearance, and providing a range of recreational opportunities for public use and enjoyment.

Management Area 23 - Metolius Special Interest

Goal: To preserve and provide interpretation of unique geological, biological, and cultural areas for education, scientific, and public enjoyment purposes.

Management Area 24 - Metolius Research Natural Area

Goal: To preserve an example of a naturally occurring ecosystem in an unmodified condition for nonmanipulative research and education

Management Area 25 - Metolius Spotted Owl

Goal: Manage habitat to enhance the carrying capacity for Northern Spotted Owls.

Management Area 26 - Metolius Scenic Views

Goal: To provide Forest visitors with high quality scenery that represents the natural character of the Metolius Basin.

Management Area 27 - Metolius Old Growth

Goal. To provide naturally evolved old growth forest ecosystems for (1) habitat for plant and animal species associated with old growth forest ecosystems, (2) representations of landscape ecology, and (3) public enjoyment of large, old-tree environments

Management Area 28 - Metolius Wild and Scenic Rivers

Goal: To protect and enhance those outstandingly remarkable values that qualified segments of the

Metolius River for inclusion in the National Wild and Scenic Rivers system.

Alternatives

Each alternative for managing the Deschutes National Forest would result in a different emphasis. The amount of land committed to different activities and performing different services determines the nature of a given alternative. There is a range of schedules for performing activities, resource outputs, and environmental consequences.

The FEIS includes an additional alternative which reviewers can use as a baseline for comparing the other management approaches. In addition to the Current Direction, there is now a No Change Alternative. It shows what would happen if management continued under the 1978 Land Management Plan. The Management Requirements developed to implement the National Forest Management Act do not apply in the No Change Alternative.

Alternatives D, F, and H were considered in detail in the DEIS and are not considered in detail in this FEIS. The reason for not considering them in detail was because of a basic lack of public support for them. Some comments were in favor in some *parts of these alternatives and those comments* were considered in developing the Preferred Alternative. All other alternatives will retain the same identification which was used in the DEIS This is being done for the sake of continuity and easy comparison between the DEIS and the FEIS.

The Regional Forester's selection of a Preferred Alternative was based on an evaluation of how well each alternative addressed the Issues, Concerns, and Opportunities, the production of Forest resources, environmental effects, and costs

Alternative A - Current Direction

This is the existing management direction of the Forest, an effort to balance timber management, dispersed recreation, visual quality, and wildlife habitat management.

Less emphasis is given to intensive recreation, old growth, and sensitive wildlife species. Alternative A does not directly provide for geothermal leasing or firewood for personal use.

Alternative B - Resources Planning Act

Alternative B meets the goals established for the Deschutes NF under the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA). Timber harvest would accelerate tc meet RPA targets. An annual limit could be set on the amount of personal use firewood to assume a long-term supply. Intensive and dispersed recreation would be both be managed to meet long-term demands. Some areas with high potential for geothermal energy would be available for leasing

Deer and bald eagle habitat would be increased. Scenic quality would be emphasized along heavily traveled roads, intensive recreation areas, and *roads to trailheads. While the Forest would be* intensively managed, options for preserving undeveloped lands and old growth would be retained.

Alternative C

Commodities and other resources which contribute to the local and regional economy are emphasized in this alternative. A significant portion of the Forest would be intensively managed for timber production. The price of firewood would increase significantly because it would compete with other wood markets.

Intensive recreation would be favored; access and facilities for large numbers of people would be provided. Much of the Forest would be available for motorized recreation Geothermal leasing would be permitted in Newberry Crater.

Deer habitat would be increased. Scenic quality would be protected along heavily traveled roads. Stands of old growth would be protected only on lands which timber harvest is not scheduled.

Alternative E - Preferred Alternative

A significant portion of the Forest would be intensively managed for timber production. Some of this production would be set aside for personal use firewood The amount would be determined by long-term supply and demand.

Both intensive and dispersed recreation would be emphasized. Both motorized and nonmotorized

recreation would be accommodated Geothermal leasing would be permitted

Habitat for threatened and endangered wildlife species would be increased. Scenic quality would be protected along heavily used roads, developed recreation areas, and some roads to trailheads. Small stand of old growth would be retained.

In the Draft EIS, Alternative E proposed a temporary departure from non-declining flow in order to contend with the bark beetle epidemic. Since the epidemic is believed to have run its course, the Preferred is no longer a departure alternative.

Alternative G

The preservation of natural ecosystems is stressed in this alternative. Land available for timber management would be reduced. The demand for firewood for personal use would be met.

Significant portions of the roadless areas would remain undeveloped. Geothermal leasing would be permitted in only a few areas around Newberry Crater and other land with high potential.

Recreation management would favor dispersed activities. Motorized recreation would be de-emphasized

Threatened and endangered plant and animal species and habitat would be maintained at high levels. Deer habitat would decrease because forage and cover would decline with the reduction in timber harvest.

Scenic quality would be maintained along major roads, trails, recreation areas, and undeveloped landscapes. A considerable amount of old-growth forest would be retained.

Figure 2-25 Acreages in Management Areas By Alternative

Management Areas	No Change	(No Action) A	(RPA) B	C	Pref. E	G
1 Special Interest	36,100	36,100	17,300	12,100	16,900	14,400
2 Research Natural	7,200	7,200	6,500	2,900	5,700	7,200
3 Eagle	3,500	3,500	18,900	14,500	19,100	19,700
4 Owl	17,300	17,300	17,300	17,300	12,000	17,300
5 Osprey	9,600	9,600	8,200	0	8,100	30,000
6 Wilderness[1]	181,300	181,300	181,300	181,300	181,300	181,300
7 Deer Habitat	193,200	193,200	189,100	227,000	208,900	116,800
8 General Forest	648,900	648,900	718,900	913,100	626,300	786,200
9 Scenic Views	321,300	321,300	220,700	42,200	171,700	133,100
10 Bend M. Watershed	3,700	3,700	3,700	3,700	3,700	3,700
11 Intensive Rec.	2,200	2,200	64,100	97,100	67,100	52,800
12 Dispersed Rec.	63,500	63,500	59,200	1,400	48,400	138,000
13 Winter Recreation	0	0	26,200	26,000	32,200	0
14 OCRA	42,700	42,700	42,700	42,700	42,700	42,700
15 Old Growth	27,900	27,900	19,000	11,800	32,800	49,900
16 Experimental Forest	9,000	9,000	9,000	9,000	9,000	9,000
17 Wild & Scenic Rivers[2]	24,400	24,400	24,400	24,400	19,800	24,400
18 Front Country					34,700	
19 Metolius Heritage					24,300	
20 Metolius Wildlife -Primitive					13,100	
21 Metolius Black Butte Scenic					10,600	
22 Met. Special For.					18,400	
23 Met. Special Interest					1,700	
24 Metolius RNA					1,300	
25 Met. Spotted Owl					5,400	
26 Met. Scenic Views					4,800	
27 Met. Old Growth					1,800	
28 Met. W&S Rivers					4,600	
Protection Mgmt.	31,300	31,300				
Mining Claims	3,400	3,400				
Net Forest Land Acre	1,621,000					
Private/Other	247,300					
Gross for All Alts.	**1,868,300**					

A detailed comparison of alternatives in given in Chapter 2 Figure S-2, below, indicates how each alternative addresses the Issues, Concerns and Opportunities.

Figure S-2 Comparison of Issue and Concern Resolution by Alternative

Issues and Concerns	Outputs or Effects to be Measured	No Change Alternative (NC) & Alt. A (No Action)	Alt. B (RPA)	Alt. C	Alt. E (Pref.)	Alt. G
Local and Regional Economies, Lifestyles, & Population levels	N/A	Is in harmony with local and regional economies & lifestyles in the short term	Emphasizes mix of commodity & amenity. Maintains lifestyles near present conditions.	Emphasizes commodity outputs & growing economic conditions & possibly populations	Emphasizes fairly high commodity outputs, primarily timber in short term mixed emphasis on commodity & amenity	Emphasize amenity values with reducing emphasis on commodity values
Timber Harvest Level & Schedule	MMBF	Continue with current level for Alt. A and increase to potential yield for Alt. NC	Meets RPA 80 Program	Increase to meet Forestry Program for Oregon and treat lodgepole.	Maintains a mix of products while accelerating harvest of lodgepole	Harvest level will be determined based on meeting goals for amenity values
Management of LP & PP stands infested with MPB and susceptible to infestations on Deschutes, Fremont, & Winema.	Acres treated and time frame.	Limits amount of area treated Extends treatment over an 80-year period	Limits amount of area treated. Extends treatment over a 50 year period.	Extends treatment over a 60 year period.	Treats large area in first decade, & then limits area treated until the fourth decade.	Starts treatment slowly in the 2nd decade, and extends treatment over a long period (100+ years).
Future demands for use of firewood	M Cords	No specific long term plans.	40,000 cords provided annually	No special provisions for personal use firewood All wood sold on competitive basis except slash	40,000 cords provided annually, more provided if needed to meet demand	40,000 cords provided annually; more provided if needed to meet demand
Provisions for present & future developed recreation	MRVDs	Limits the Potential	Increases the potential	Significantly increases the potential	Same as C	Limits the potential
Expanding demands for dispersed recreation	MRVDs	Limits motorized; maintains nonmotorized	Emphasizes a mix of motorized recreation	Significantly increases motorized, reduces nonmotorized	Emphasizes a mix of motorized and nonmotorized	De-emphasizes motorized, heavy emphasis on nonmotorized

Figure S-2 Comparison of Issue and Concern Resolution by Alternative (continued)

Goods and services provided while maintaining visual quality		Heavy emphasis on visual	Moderate emphasis on visual in different areas.	Heavy emphasis on goods & services Little emphasis on visual	Same as B except visual emphasized in different areas	Low emphasis on visual and goods & services
Non wilderness roadless areas	Mixed developed & not developed	Areas with high public concern remain undeveloped Others are developed	All developed	Same as B, with a different variation on what is developed.	None of the areas are developed.	

Identification of the Preferred Alternative

Alternative E was identified as the Preferred Alternative in the DEIS. It was also selected as the Proposed Action by the Regional Forester in this FEIS but has, in the interim, undergone significant change. These changes were made because of public input to the 1986 DEIS and additional input since then.

This alternative was changed from a departure using even-age management to non-declining even flow using more uneven-age management. More detailed analysis was conducted to determine the effects of leaving more 18", 24", and 30" trees growing in the Forest rather than eventually reducing future tree size to 18".

Environmental Consequences

Implementation of any Alternative, including the Preferred Alternative, would affect the Forest's environment and resources. Short-term, long-term, and cumulative effects were considered. Both direct and indirect effects were also taken into account.

The environmental consequences will be mitigated by implementation of standards/guidelines, a compilation of Forest Service requirements for the conduct of activities. These standards/guidelines have been published in Chapter 4 of the Forest Plan, which accompanies this document.

Effects That Do Not Vary Significantly Among Alternatives or Resources

Some Forest resources are protected and managed equally in all Alternatives through the application of the standards/guidelines. These resources include air, Threatened and Endangered (T&E) plant and animal species, cultural resources, caves and other geological sites, water, and soil (See Chapter 4, Forest-wide standards/guidelines in the Forest Plan). In all cases, these resources are mainly affected by the amount of timber that will be harvested in any alternative, and to a lesser extent, the amount of recreation (and other) facilities that are developed.

Other resources are comparatively scarce within the boundaries of the Forest and therefore are not significantly affected by any Alternative. These include prime farmlands, wetlands and floodplains, and exploitable minerals. Where present, these resources are also protected and managed through the application of standards/guidelines

Issues involving air and water quality, noise pollution, fire suppression, and the use of herbicides are also treated equally throughout all Alternatives. They vary among the Alternatives by the amount of timber that is proposed for harvest or treatment.

Effects on Resources that Vary Among Alternatives

Soil

Alternatives which call for the high levels of timber production and/or developed recreation have the greatest potential for affecting long-term soil productivity. Repeated harvest or post-harvest activities onto sensitive soils, including steeply sloping lands, areas of high ground water, etc. have a high potential to adversely affect soil Projects will be designed to protect soil productivity and will be closely monitored.

Water

Alternatives that call for high levels of timber management and recreation have the greatest potential to increase soil disturbance and violate federal and state water quality standards. Water quality would be protected in any alternative by Best Management Practices (BMPs).

Fish

Like water quality, alternatives which call for high levels of timber management and recreation have the greatest potential to negetively affect fish habitat The cumulative effects of combinations of activities occurring over time are not expected to result in seriously negative effects on water quality and fish habitat on this Forest. Impacts to stream channels can be caused by peak flow increases attributable to timber harvest. They are not expected to be serious, however, because of the generally flat nature of the landscape of most activity areas and the spring-fed origins of most drainages

Wildlife Management

The environmental consequences of wildlife habitat management also vary significantly by Alternative and treat species different in each. Because big game hunting is a way of life in central Oregon, most Alternatives maintain or increase habitat for mule deer. Some provision is made to protect bald eagle and spotted owl habitat in Alternatives because they are threatened or sensitive species.

Wildlife habitat management does not significantly affect most resources. When timber and vegetation are managed to provide wildlife habitat, timber is produced below full potential, which indirectly affects the local economy. Localized deer and rodent damage tree plantations, resulting in higher reforestation costs. Prescribed burning for wildlife habitat may have short-term effects on scenic quality. An indirect effect of managing for some species is the perpetuation of old-growth forest.

Big game compete with domestic livestock for forage on rangelands. Fish stocking in Wilderness and roadless areas, and throughout the Forest, can affect human use patterns and levels. Wildlife is an important recreation attraction on the Forest and both its consumptive and non-consumptive uses contribute to the local economy and are an important part of local lifestyles.

Wilderness Management

The environmental consequences of Wilderness management are the same in all Alternatives. Timber harvest is not permitted and livestock grazing is limited to areas established prior to Wilderness designation. Wilderness preserves natural ecosystems and large areas of old-growth forest. Wildlife habitat is protected. Development activities adjacent will have an adverse impact on the quality of the wilderness experience.

Wilderness management also has social consequences relating to important human values and opportunities for primitive recreation experiences. Wilderness areas generate less revenue and create less employment than other areas of the forest because they are not available for commodity production.

An increase in the amount of human use of some wilderness areas has produced environmental degradation. In the absence of successful measures to divert or regulate this over-use, alternatives which call for the largest increases in recreation visitors have the potential to adversely effect wilderness. However, S&Gs for wilderness (see Management Area 6, Ch. 4, Forest Plan) have been developed to mitigate the potential for adverse effects

Transportation

Alternatives calling for the most miles of road construction would increase opportunities for motorized recreation. Those calling for roading near wildernesses and roadless areas, however, reduce the quality of the wilderness experience Roading can also degrade scenic quality

Road construction associated with timber management would increase opportunities for motorized dispersed recreation. Roading systems would increase access adjacent to Wilderness and would change the character of roadless areas thus recucing the Wilderness and roadless area experience. Roading represents a long term commitment of forest resources.

Cultural Resources

Alternatives calling for greater harvest and road construction levels and more intensive management of developed recreation sites would increase both the potential for locating sites and for inadvertently disturbing sites during management activities.

Timber Management

Alternatives calling for the largest harvest of timber would most dramatically alter the structure and composition of Forest plant communities. As timber is harvested, forage for wildlife and livestock will increase and hiding and thermal cover decrease.

Harvest also reduces natural habitat for cavity dependent wildlife species, birds and small mammals. Wildlife populations which use or depend on old growth will decline with the harvest of older timber stands. Intensive timber management will change the structure of the Forest from larger trees of mixed ages to a more uniform forest with smaller trees.

The cumulative effects of the accelerated lodgepole pine harvest because of the mountain pine beetle epidemic, as proposed in some alternatives, would decrease wildlife cover and visual quality in many areas in the short-term

Forest Health

Many of the potentially detrimental impacts of forest pests can be controlled silviculturally in any of the alternatives. However, controlling the undesirable impacts of a number of forest diseases including dwarf mistletoes, root diseases and stem decays will be more difficult in alternatives (E and G) which call for a significant amount of unevenaged management. Effects on insect pests would not vary substantially between alternatives

Fire

Alternatives which call for more timber management and/or recreation have the potential to increase fire occurence on the Forest.

Air Quality

Forest management activities can affect air quality by adding smoke and dust to the air Alternatives with higher levels of activities have the potential to affect air quality the most, however, such affects are short-term.

Range Management

Alternative C is most responsive to range management while B is the least. The other Alternatives meet the RPA program. The environmental consequences of range management in all Alternatives, however, are minimal. Livestock grazing can damage tree plantations, decrease forage, and cause soil compaction, particularly near salt licks and water sources. Livestock grazing alters native vegetation and can introduce non-native plant species.

Livestock in Wilderness and roadless areas can reduce the Wilderness experience for some users. Livestock grazing on public lands is a traditional part of the local economy.

Energy

Geothermal reservoirs of commercial value probably exist on the Forest but none have been discovered or characterized. At the present time, not enough is known about potential consequences of development or about the technology being proposed for development Therefore, effects that may vary between alternatives are not known at this time.

Recreation

Alternatives C promotes developed site recreation and restrict dispersed recreation. Alternatives G emphasizes dispersed recreation Others provide a mix

Opportunities to enjoy various types of developed and dispersed recreation vary significantly among Alternatives. Some promote developed site recreation and restrict dispersed recreation opportunities to existing Wilderness areas, such as Alternatives C and D. Alternatives G and H emphasize dispersed recreation. Others provide a mix.

The environmental consequences of recreation management reflect recreation use patterns. Developed campgrounds enable people living in urban environments to enjoy the outdoors Overcrowding in popular developed campgrounds causes environmental degradation, usually in a localized area. Soil erosion and water contamination can occur. Dispersed recreation could produce the same environmental consequences but on a lesser scale.

Timber would not be available in Wilderness and unroaded recreation areas. Retention of the natural landscape in and around recreation sites would also limit timber harvest. As a result, concentrations of old-growth forest and a diverse plant community would be preserved in some areas. These could be damaged or destroyed by overcrowding in popular recreation sites. Facilities development and small-scale lodgepole pine harvest in many popular recreation sites may diminish the outdoor experience over the short term for some people but would improve the quality in the long term. Rangeland is not significantly affected by recreation management.

Wilderness and unroaded recreation areas would protect wildlife. Conversely, motorized recreation in developed and dispersed recreation areas would disturb and displace wildlife.

Recreation management has both indirect and direct social consequences. It provides opportunities for unconfined recreation in the outdoors Recreation generates revenue and employment for the local and regional economy. Increased human pressure on the environment caused by recreation could decrease the quality and opportunities for recreation over the long term and require some new restrictions.

Visual Management

Alternative C protects areas along major travelways. Alternatives G and E protects and enhance significant areas for scenic quality while achieving other objectives

Scenic quality is managed differently in various Alternatives. Alternative E emphasizes maintaining visual quality while C only protects areas along major travelways. Alternative G and E protect and enhance significant areas for scenic quality while achieving other objectives. Alternatives B emphasizesscenic quality in relation to timber harvest.

Visual management limits the latitude of timber management activities. It can reduce the volume of harvest and increase costs in order to protect the landscape. Indirectly, visual management may generate less economic activity related to timber harvesting, though most Alternatives emphasize some level of commodity production where much logging activity is screened from view.

Recreation sites area usually in areas of high scenic quality which are protected so the consequences of visual management are minimal It could increase the cost of construction of some facilities such as ski lifts and other nonconforming uses, particularly electronic sites and some geothermal facilities. Visual management would be similar in dispersed recreation areas but less restrictive

The environmental consequences related to range, wildlife, wilderness, and old growth forest would be minimal. Visual management would tend to perpetuate all of these.

Visual management will protect scenic quality of uncommon or outstanding landscapes for the long term. This has important social consequences and values for many people.

Old Growth

All of the Alternatives meet the needs based on the criteria which was developed and used The question then becomes subjective in terms of 1) whether one should manage for minimum level, which really does not provide options for the future, and 2) how much consideration of public needs (social) should be met. Suffice it to say that we can best meet both of these needs in the Preferred Alternative and that the other Alternatives meet varying degrees of what we need for landscape ecology, wildlife, and social wants.

Management activities will have an effect on available old growth (see Figure 4-11). The Preferred Alternative will leave 262,500 acres of old growth after the fifth decade. Species distribution of this 262,500 is concentrated in those species generally found at the higher elevations. Ponderosa pine in the Ponderosa pine species working group, amount to 12% of the old growth remaining after the fifth decade (Alt E). Ponderosa pine old growth trees can also be found in association with lodgepole pine and Douglas fir, white fir, and mountain hemlock. The amount of old growth remaining after the fifth decade varies from 182,200 in Alternative C to 262,500 in Alternative E. The amount of Ponderosa pine old growth after the fifth decade varies from 16,700 acres in the Alternatives No Change and A (see figure 2-77) to 32,700 in Alternative E.

Social and Economic

Four social parameters are used to assess the impacts of the alternatives. They are: 1) changes in employment levels, 2) lifestyles, i.e how people use and perceive the quality of their environment in terms of recreational and subsistence, 3) community stability and cohesion, i.e. the health of the social institutions (stability) and the degree of unity and cooperation evident in a community as it defines and resolves problems (cohesion), and 4) attitudes, beliefs, and values, i.e. the feelings, preferences, and expectations people have for forests and the management and use of particular areas. See FEIS, Appendix B, Section V for a more detailed description of these social considerations.

Effects of the Alternatives on Jobs

In summary, all Alternatives will have a negative effect in the short-term on the employment base in all community types except Rural Recreation and Residential. Since the demand for recreational opportunities is predicted to continually rise, employment based on recreation opportunities will offset employment losses in all community types except the more dependent Rural Industrial communities such as Crescent and Gilchrist. The increase in recreation employment through time will be greatest in Alternatives E and G, and timber related employment will be greatest in Alternative C followed by Alternatives B and A

Effects of Alternatives on Leisure Lifestyles

Rural Industrial communities should not experience any effects on leisure lifestyles due to implementation of any of the five Alternatives. All the Alternatives provide similar amounts of leisure activities generally associated with these community types. Alternative C, with more dispersed recreation opportunities, including vehicle access, probably has the highest positive effect. Conversely, Alternative G, with the lowest access, has the worst effect. However, Alternative G provides the highest amount of firewood of any alternative which should offset the negative access restrictions.

In the short-run, Rural Recreation and Residential communities should experience positive effects from implementation of any of the Alternatives. In the long-run, Alternatives A, B, and C, due to loss of visual quality and more primitive recreation activities, may result in negative impacts on these community types.

The impact of forest related leisure opportunities, from implementing any of the five Alternatives, on the Urban (Bend) and Westside communities should be similar to those of the Rural Recreation and Residential. The lesser amount of visual quality objectives and lower emphasis on maintenance of existing unroaded areas outside Wilderness may be more strongly opposed by these communities than by Rural Recreation and Residential. Alternative C's higher developed and dispersed recreation opportunities, on the other hand, may offset any major negative impacts potentially found in the Rural Recreation and Residential community because of the more diverse recreational tastes in these two community types.

The Effect of Alternatives on Community Stability and Cohesion (Social Organization)

This social parameter considers both the effect on the social institution (i.e. schools, churches, etc.), and community cohesion, which is an estimation of unification or polarization within a community.

It is predicted that implementation of any of the Alternatives will exert some downward pressure on the ability of social institutions to function properly within Rural Industrial communities. This will be caused by decreased timber revenues and income associated with timber dependent employment necessary to support these institutions. On the other hand, community cohesion will be strengthened as people with the same basic views band together against what will be perceived as "outsiders" destroying their way of life.

Due to the size and diversity of the Bend economy, the negative and positive effects of less timber and more recreation will balance out in terms of impacts on social structures. If effects were to occur, they would tend to be negative. Potentially, the most negative would be from Alternative G, followed by Alternatives E, B, A, and then C.

Community cohesion, on the other hand, will be lessened in all Alternatives because of the diverse, polarized interests found within the community. Alternatives B and E can be expected to affect the least internal conflict due to the perception that they are more properly balanced.

Effects of Alternatives on Attitudes, Beliefs, and Values

All community types will experience some negative impacts, under any of the five alternatives, related to their attitudes, beliefs, and values because of the perception that their needs are not being met. This feeling will be strongest in Rural Industrial communities under Alternatives G and E, and in Rural Recreation and Residential under Alternative A and to a lesser degree Alternative C.

Cumulative Effects

As stated in the introduction, the Forest Influence Area is affected by more than decisions made concerning the Deschutes National Forest. Decisions by other national forests, local private economic sectors, and regional and national environmental, political, and economic factors may either mitigate or exacerbate effects described above.

One of the major uncertainties facing local economies is the stability of local timber supplies. A further reduction in wood product related employment is possible due to further reduction in supply from this National Forest, due to the Northern Spotted Owl Recovery Plan, etc., and from increased competition by outside mills.

Effects on Native Americans

The Native American Religious Freedom Act requires Federal agencies to evaluate their policies and procedures in consultation with Native American leaders in order to protect and preserve Native American religious sites and areas through cultural resource surveys, and contact with the tribes. No conflicts were identified with the Tribes Comprehensive Plan The Forest is not recognized as having a significant impact on resources or the socio-economic concerns for the Warm Springs Reservation.

Effects of Alternatives on Minorities and Women

Changes in employment and employment patterns may have effects on minorities and women. As employment in general increases or decreases, everyone, including minorities and women, will be affected. The question is whether there are any disproportionate effects on minorities or women.

Probable Adverse Environmental Effects That Cannot Be Avoided

Implementation of any of the alternatives would inevitably result in some adverse environmental effects. Most are temporary and would be mitigated over the long-term. The severity of the effects can be minimized by adhering to the direction in the management prescriptions and standards/guidelines in Chapter 4 of the Forest Plan. Some impacts, however, generally cannot be avoided if management activities are implemented.

Cultural Resources

Current methodology cannot insure that all sites will be located. Some significant sites may be inadvertently destroyed or damaged. Pending advances in inventory techniques, such impacts are unavoidable.

Mitigation of adverse effects at significant sites will release affected acres for project activity. Elsewhere, continued avoidance of sites will prevent or minimize the activities within the affected acres.

Improvements

The construction of new roads will have a long-lasting impact by changing the line, color, texture, and vegetative growth along the road as viewed by the Forest user As an access for recreation, timber, and administration activities, traffic use causes wear on roads which results in surface erosion. The effects can be partially mitigated by timely maintenance or reconstruction activities.

Developed recreation sites are susceptible to use and vandalism effects. Some impacts can be mitigated through maintenance, reconstruction, and various preventative or enforcement methods applied to vandalism problems.

Wilderness and Roadless Areas

The existing Wilderness potential in any of the inventoried roadless areas would be foregone under alternatives where these areas are allocated to some form of development. Areas suitable for undeveloped recreation (semiprimitive nonmotorized, or semiprimitive motorized) could become unsuitable for this type of recreation experience when the are developed Development of these roadless areas could permanently destroy to temporarily modify attributes making them suitable for undeveloped recreation.

Mineral exploration and development will be prohibited or restrained in designated Wilderness.

Soil and Water

Although the Forest Standards and Guidelines, BMP's, and Monitoring and Evaluation Plan have been designed to prevent significant adverse effects to soil and water, the potential for their occurrence does exist. Soil would be displaced as a result of timber sales, slash treatment, and construction of roads, trails, recreation, and geothermal facilities. Overall, soil productivity would be maintained except for sites dedicated to roads, landings, recreation sites, and other facilities or uses which compact the soil or occupy a site.

Standards/guidelines and monitoring, will prevent or mitigate any major or highly adverse soil and water impact to the established beneficial uses. In addition, the Forest will coordinate with the State water quality agencies and the EPA in regard to BMP's.

Air Quality

Air quality may be temporarily degraded in localized areas as a result of prescribed fires and geothermal development. Short-term degradation of visual quality in recreation and scenic areas would occur as a result of harvesting mountain pine beetle infested lodgepole pine.

Relationship Between Short-Term Use and Long-Term Productivity

The relationship between short-term uses of man's environment and the maintenance and/or enhancement of long-term productivity is complex Short-term uses are those that generally occur on an annual basis on some area of the Forest Long-term productivity refers to the land's capability to produce a continuous supply of resources and values for future generations. For purposes of this analysis, the period is either beyond the first decade or the planning horizon (150 years), depending on the specific resource. Under all alternatives, the long-term productivity of the Forest is protected from unacceptable degradation by specific Standards and Guidelines Below are those environmental components that relate today's uses, and activities to tomorrow's productivity.

Geothermal Resources

Management prescriptions which call for increasing accessibility restrictions on mineral entry have a short-term effect on geothermal availability. The effect, however, can be long-term if geothermal leasing is prohibited.

Improvements

Structural improvements contribute towards the opportunity to utilize the potential productivity of Forest resources. Producing the goods and services associated with forest environments require functional improvements which enhance economic values. Roads and trails provide the necessary access. Roads are considered to be long-term improvements which provide for continued use over time.

Wildlife use the created openings resulting from the presence of roadways. When people use vehicles on these roads, wildlife are at risk to "road kill," hunting, and harassment during their life cycle. These actions may modify future population levels, with a greater effect on nongame species and selected species types as game species have regulated population levels.

Where a road is temporarily closed between periods of use, the ability to use the road for other purposes is foregone Revegetation of these closed roadways will have to be removed before reuse to permit travel. Compaction of the roadbed reduces the ability of some vegetation (especially commercial tree species) to grow on many closed roads; however, this is irrelevant to long-term site productivity as the area encompassing the road has been removed from the land base suitable for the production of timber.

Wilderness and Roadless Areas

The designation of Wilderness has some effect on long-term productivity. Opportunities to increase productivity or capture sustainable outputs through management of timber and some kinds of wildlife habitat are foregone. The maintenance of Primitive recreation opportunities is maximized, however, other recreation opportunities are not. Maximum protection is afforded water quality and the related fishery, old-growth trees, and associated wildlife species. However, enhancement or restoration opportunities could be constrained. Natural-appearing landscapes are preserved, although buildup of natural fuels may increase risks of catastrophic wildfire. Prescribed fire may be used to mitigate this impact.

Wild and Scenic Rivers

The designation of the inventoried Wild and Scenic Rivers has some effect on long-term productivity No harvest is programmed in any designated Wild and scenic river; opportunities to increase productivity through management of timber are thereby foregone. Geothermal leasing may be severely constrained or lands withdrawn.

Irreversible and Irretrievable Commitment of Resources

An irreversible commitment of resources results from a decision to use or modify resources that are renewable only over a long period of time. Nonrenewable resources, e.g., rock resources, geothermal, etc., are an irreversible commitment once used. An irretrievable commitment of resources refers to resource production or the use of a renewable resource that is lost because of land allocation and/or scheduling decisions. In other words, opportunities are foregone for the period of time that the resource

cannot be used The Forest Plan and the alternatives examined are all based on the principles of multiple use and long-term productivity for all resources. Measures to protect natural resources that could be irreversibly affected by management practices are incorporated into the Standards and Guidelines of the Forest Plan.

Cultural Resources

Data recovery efforts represent, in essence, the scientific and controlled destruction of a cultural resource site Once undertaken, the effects of data recovery are irreversible, this mitigation measure represents an irretrievable commitment to the resource. At a minimum, conventional archaeological techniques and methods will be employed for data recovery projects. This commitment to high quality field and laboratory work will ensure the consistency and usefulness of the data

The combination of impacts from past and proposed future landscape modification, private developments, natural deterioration, and vandalism will significantly reduce the existing cultural resource data base. Information on past ways of life within southwestern Oregon, beyond our current understanding, may eventually be unavailable.

An incremental decrease of the cultural resource data base will occur wherever sites are lost due to ground-disturbing activities of other ownerships adjacent to the Deschutes National Forest. For example, private logging and road building could disturbing cultural evidence which would be valuable for comparative studies underway in that same drainage on Forest Service lands. In other cases, nonprofessional excavation of sites on private lands could further reduce the cultural resource data base as well as our opportunity to understand the heritage of central Oregon. Such actions have irreversible and cumulative effects on this resource.

For each alternative, mitigation measures are developed whenever a Class 1 cultural resource is affected by projects, vandalism,, or natural deterioration. These measures include: site avoidance, data recovery, photo documentation, restoration and analysis. The Standards and Guidelines outline the mitigation measures, as necessary, and the Monitoring Plan insures compliance. Mitigation measures will improve in the future. Techniques used for data recovery and other professional analyses will be refined.

Any cultural resource lost, either overlooked or unmitigated, will be unavailable either for future analysis or interpretative opportunities. Current management practices will continue for those sites previously treated; newly discovered sites will be managed as prescribed by any revised direction, including any forthcoming changes in the scope of standards for survey, analysis, reporting, and mitigation.

Sites which are known to exist outside of proposed project boundaries are difficult to manage Inventory, as a rule occurs within areas selected for timber harvest, road building, or other ground-disturbing activities. Therefore, sites may be lost which are· (1) never identified or recorded, and (2) identified, yet are located outside of proposed project areas

Energy

The use of fossil fuels in the administration of the National Forest is an irreversible resource commitment. Alternatives only vary by the amount; none abstain from use.

Improvements

The majority of the roads constructed on the Forest tend to become permanent features on the landscape. Many roads which are scheduled for reclamation do not return the land to the prior productive stage For these and all other roads on the transportation system, there is a definite long-term loss of either some or all of site productivity within the excavated road prism

Volcanic cinder is used for surfacing on hundreds of miles of road. Once it is ground to dust by traffic on the road or broken up by weathering agents, it can no longer retain the desired characteristics.

Wilderness and Roadless Areas

Wilderness potential (characteristics) in those roadless areas allocated to management where development may occur is irretrievably lost. This irretrievable loss, though, will only occur upon project implementation and not as a direct effect of the Forest Plan allocation. However, this is more a preference than real as evidenced by existing developments when specific areas were designated as Wilderness on this Forest and elsewhere.

Wild and Scenic Rivers

Designation of the inventoried Wild and Scenic Rivers would permanently reduce or prohibit timber harvest. Mineral exploration and development is also restricted

or prohibited. Opportunities for the construction of dams, diversions, and hydropower development are prohibited.

Soil and Water

There is an inherent risk of accelerating soil compaction, erosion, and other changes in the soil physical and biological properties when harvesting timber and building roads on the Forest. Productivity, once lost, requires a long time for natural processes to restore The soil and water protection measures identified in the Standards and Guidelines are designed to avoid or minimize the potential for irreversible losses from the proposed management practices.

Fire

There is no irreversible commitment of resources associated with the fire prevention, suppression, or fuels programs as they could be curtailed at any time. There will be a minor irreversible commitment of fossil fuels involved with various fire management activities

Vegetation

Grazing allotments may be restricted to protect sensitive plant species. This would constitute an irretrievable loss to the permittees.

Old-growth forest, once harvested, are considered an irretrievable loss Once harvested, the stand begins anew. To again develop old-growth forest characteristics will require approximately 200 years. Insects, disease, and fire can also contribute to this loss. If left unmanaged, stand decadence may alter some types of old growth sufficiently to set the vegetative structure back to an early successional stage. The result would be a natural change, or loss, of old growth.

Environmental Effects Unchanged by Alternatives

Some of the resources on the Forest are not affected by implementation of any of the alternatives. More often, the activity-induced impacts are either similar or conditions of the environment remain unaffected.

Land Allocations

The acres allocated to Bend Watershed, Experimental Forest, Wild & Scenic Rivers, Oregon Cascades Recreation Area and Wilderness Management areas do not vary between alternatives, therefor the effects will remain about the same between all alternatives.

The effects predicted for all alternatives have been compared to the county plans and are consistent at this programmatic level.

Energy

Utility corridors do not vary by alternative. They will continue basically as they exist today, with normal maintenance as needed. There are no proposed corridors; future proposals will be analyzed on a project-specific basis

Small hydroelectric projects do not vary by alternative. They, too, will be dealt with on a case by case basis as proposals are administered through established Federal Energy Regulatory Commission procedures and Agency analysis.

Geothermal Deposits

Roads developed for geothermal access and development can add to dispersed motorized recreation opportunities.

Improvements

There will continue to be a road system to serve the needs of Forest users and for Forest management and protection Each alternative provides for some degree of accessibility for various resources, such as timber management, fire prevention and suppression, recreation, and special uses.

Specifically Required Disclosures

Effects of Alternatives on Threatened and Endangered Species, and Critical Habitat

Regardless of the alternative, protection of listed species will take precedence over other land management direction. The bald eagle and peregrine falcon are the only threatened/endangered species identified at present by the USDI Fish and Wildlife Service. The bald eagle is

threatened and the peregrine falcon is endangered in Oregon. None of the Alternatives would have an impact on threatened or endangered species.

The Forest will comply with all appropriate threatened and endangered species recovery plans. Provision is made in the plan to pursue informal or formal consultation as necessary during project design and analysis.

Effects of Alternatives on Prime Farm Land, Rangeland, and Forest Land Within the Deschutes National Forest

The Soil Conservation Service USDA, has an Important Farmlands Inventory process that they use to locate the best lands for producing food, feed, fiber, forage and oilseed crops Roger Borine, Area Soil Scientist for the Soil Conservation Service in Bend, Oregon, indicates that their are no lands within the boundaries of the Deschutes National Forest that are considered Prime Farmlands (National Soils Handbook, Soil Conservation Service, USDA, Part 603 - Application of Soil Information, 603.05 Prime Farmland Soils. July 1983).

Energy Requirements of Alternatives

There direct and indirect effects upon the energy requirements necessary to carry out the proposed alternatives. The approximate net energy requirements for the first decade are shown in the table below

Effects of Alternatives on the Human Environment

Local consumers will be affected by the supplies of various commodities documented previously in Chapter 4.

The civil rights of any American citizen are not differentially affected by implementation of any alternative.

Effects on Wetlands and Floodplains

No significant adverse effects within areas of wetlands and floodplains are anticipated. This is largely due to the very small size of upslope wetlands, i.e., tiny bogs and small ponds, and the position of the limited floodplains in the stream and river areas. However, where floodplains do exist, they correspond to the Riparian protection areas and other land allocations which restrict or prohibit management activities and development. Other than existing developments such as roads and campgrounds, human habitation in the riparian areas on National Forest lands is extremely limited

Protection is afforded to these areas through BMP's incorporated in the Standards and Guidelines, NEPA analyses and accompanying management requirements, Executive Orders 11988 (floodplains) and 11990 (wetlands).

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