tive G would contribute the most to these conditions, followed by Alternatives E, B, C, and finally A

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.

Mitigation

There are many mitigating factors working in the economies in both the larger Rural Industrial (Prineville, Redmond) and Urban (Bend) community types For instance, many of the existing mills have added small diameter log mills. Although these mills use fewer people per unit output, they also prevent the small logs from leaving the area before they are processed. In the past, much of this material was used as firewood or processed outside the Forest Influence Area. In the future, as the timber supply decreases and log size becomes smaller this will ameliorate losses in the wood product sectors Also, as log size decreases, logging will become more labor intensive which will mitigate potential losses in the logging sector due to decreasing supplies Also, as supplies decrease, competition will drive bid prices up. This will mitigate, if not improve, the amount of revenues the Forest contributes in terms of payments to counties.

The biggest mitigating factor revolves around the area's wood products remanufacturing sector. A recent study, "A Socioeconomic Analysis of the Secondary Wood Products Manufacturing Industry in Central Oregon," May 1990¿, concludes that, "expected growth in secondary wood products manufacturing employment will continue to compensate for jobs lost in primary wood products manufacturing."

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.

In the Forest Service, hiring of women and minorities is affected by the Equal Employment Opportunity (EEO) program It is assumed that if the Federal workforce increases, women and minorities will benefit through the EEO program. Conversely, a decreased Federal workforce may reduce employment opportunities for minorities or women as for all potential employees.

Another Federal provision relates to contracts set aside for disadvantaged minority contractors (8A contracts). As Federal budgets increase or de-

crease, the money available for such contracts will rise or fall. However, overall effects of the "8A" contracting in our area are small

In employment in the private sector, there is not clear evidence that Forest decisions would disproportionately affect minorities. Women might be disproportionately affected by the selection of an alternative. Women's careers tend to be concentrated in clerical, trade, and service fields, with significant numbers of women also employed in the mills (State of Oregon, 1984a and 1984b). Women are more likely than men to work part time, frequently in trade or service occupations If these areas of employment are affected by a given alternative, women might be affected

Based upon these assumptions and the fact that all Alternatives create service related employment, employment opportunities for women should increase under all Alternatives and in all community types. Because the service related sectors are concentrated in the Urban and Rural Recreation and Residential communities, most of the increase in opportunities will be located in these community types. Conversely, the low opportunity for increase in the service sector in Rural Industrial, coupled with a decrease in wood processing opportunities, will lead to fewer job opportunities in these communities

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 S&Gs, 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

S&Gs 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 S&Gs. 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 S&Gs 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 S&Gs 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 S&Gs 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. These lands have been called Prime Farmlands and have the following definition

> Prime Farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage and oilseed crops and is available for these uses. It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks They are permeable to water and air. Prime farmlands are not excessively eroded or saturated with water for long periods of time, and either do not flood frequently during the growing season or are protected from flooding

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 meet the above definition or 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.

Figure 4-21 Estimated Net Energy Balance By Alternative in Billions of British Thermal Units

Alternative	Decade 1
No Change	-1,928.9
Alt A (NA)	-1,928 9
Alt B (RPA)	-1,767.2
Alt C	-2,162.5
Alt E Pref	-1,788.7
Alt G	-1,746 6

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 S&Gs, NEPA analyses and accompanying management requirements, Executive Orders 11988 (floodplains) and 11990 (wetlands).

Collectively, these provide excellent direction to ensure that road construction, campground development, structural placements, and other facilities will not have unacceptable adverse impacts on the wetlands and floodplains. Except along the major river areas, avoidance or measures to protect the high values of these sensitive sites are the normal prescription Many sites are associated with high wildlife values

The riparian ecosystems contiguous to several hundred miles of streams across the Forest are protected and managed through the prescriptions and S&Gs applied to the Riparian areas and other Management Areas that have little or no development activity, and Regional and Forest policy. Discussion, management directions, and evaluation of impacts are provided in all chapters of this document

List of Preparers

The following persons, listed alphabetically, were the principal preparers of both the Environmental Impact Statement and the Forest Land and Resource Management Plan Each person's educational qualifications, work experience, and role in the planning process is included. Listed separately are those persons who provided significant contributions to the Plan in its early development stages, but who are no longer part of the Deschutes National Forest Planning Process.

Scott Beyer

Position:

Natural Resource Planner

Education:

B S. in Forest Management, University of Missouri

Experience:

1988-Present Natural Resource Planner, Deschutes N.F.
1986-1988: Silviculturist, Fort Rock R.D , Deschutes N F
1985-1986 Writer/Editor, Ochoco N.F.
1979-1985· District Silviculturist, Prineville R D., Ochoco N F.
1977-1979 Forester, Prineville and Big Summit R.D., Ochoco N.F

Kim Boddie

Position:

Range Conservationist /Computerized Mapping Systems

Education:

B S. in Forest and Range Management, Colorado State University, 1965.

Experience:

Work experience has been Range Management, Recreation, Timber, Special Uses, and Wildlife Held positions as Assistant Ranger on the Medicine Wheel District, Big Horn N.F , Crystal River and Sopris Districts, White River N.F.; Recreation and Lands Assistant on Animas District, San Juan N.F ; Resource Coordinator, Chemult District, Winema N.F.; 12 years as planning Interdisciplinary Team Member for Range and R2 map system, Deschutes N.F.

Joanna Booser

Position:

Forest Silviculturalist

Education:

B.A. in Biology, Swarthmore College, Swarthmore, PA, 1972
Masters in Forestry, Duke University, Durham, NC, 1974
Certified Silviculturalist, Region 6, 1984

Experience:

Forester, Bend District, Deschutes N.F.; Researcher, Ecosystem Dynamics and Ornithology, South Florida Research Center, Homestead, Florida, National Audubon Research Station, Tavernier, Florida, and Rocky Mountain Biological Laboratory, Gothic Colorado; Forestry Consultant, Guatemala; Forestry Technician, Hoback District, Bridger-Teton N.F., Wyoming; Ranger-Naturalist, Yellowstone National Park, Wyoming, and Everglades National Park, Florida.

Carl Burke

Position:

Cartographic, Design Layout

Education:

Graphic Art, Design, University of Minnesota.
AA in Mechanical Engineering, Central Oregon Community College & Oregon Technical Institute

Experience:

Two years in landscape architecture, Deschutes N F ; Twelve years as Visual Information Specialist on Deschutes, Ochoco, and Mt Hood N.F , Cartographic Technician for Ochoco & Malheur N.F

Larry Chitwood

Position:

Forest Geologist and Geotechnical Leader

Education:

B A. in Music, Whitman College, 1965.
M.S. in Geology, Portland State University, 1976.

Experience:

Geologist for Deschutes National Forest since 1972, with principal work in engineering geology, minerals management, geothermal resource management, and interpretive geology Visiting professor at University of Zurich, Switzerland, in 1987

Rob Evans

Position:

Forester/Analyst, Land Management Planning

Education:

B A. in Political Science, University of Iowa, 1972.
M.F. in Forest Management, Utah State University, 1980.

Experience:

Teaching Assistant in Forest Dendrology, Wood Products and Forest Measurements, Utah State University; Forestry Assistant, Colorado and Utah BLM; Operations Research Analyst, Wasatch-Cache N F.; Planning, Dixie N F.; Acting Forest Silviculturist, Dixie N.F.; Certified Silviculturist, Region 4.

Tom Felando

Position:

Forest Hydrologist

Education:

B S., California State College, Dominguez Hills.
M S. in Watershed Management, Humboldt State University.

Experience:

Seasonal work for USDA Forest Service and USDI Bureau of Land Management in summers of 1975, '76, '77; Hydrologist for Army Corps of Engineers for 1.5 years, Hydrologist for BLM for half a year; Hydrologist for USDA Forest Service for 11 years Has done additional fisheries work for past 8 years

Paul Flanagan

Position:

Computer Programmer

Education:

B S. in Wildlife Biology, University of Montana, Missoula, Montana, 1976
M.S in Forest Entomology, University of Idaho, Moscow, Idaho, 1982.

Experience:

1988 - Present: Computer Programmer Analyst, Deschutes N F.
1985-1988 Part time instructor at Central Oregon Community Department of Math and Computer Science; Microcomputer Consultant
1983-1985: Graduate student, Department of Forestry, University of California, Berkeley, California

Jim Gray

Position:

Assistant Forest Silviculturist

Education:

B S. in Forestry, University of California, Berkeley, 1965.

Experience:

1990-present: Assistant Forest Silviculturist, Deschutes N.F.
1989-1990: Planning Assistant, Crescent District, Deschutes N.F.
1978-1989: Planning and Silviculture Staff, Chemult District, Winema N.F.
1976-1978: District Silviculturist, Gold Beach District, Siskiyou N.F.
1973-1976 Project Accomplishment Officer, Quincy District, Plumas N.F.
1971-1973: District Silviculturist, Greenhorn District, Sequoia N F.
1968-1971: Timber Management Assistant, Camptonville District, Tahoe N.F.
1965-1968: Forester, Nevada City District, Tahoe N F.

J Neil Hunsaker

Position:

Planning Staff Officer

Education:

B S. in Landscape Architecture, Utah State University, 1959

Experience:

Twenty-eight years experience with the Forest Service, mostly in the Intermountain Region (R-4), with 3 1/2 years in the California Region (R-5) and since May of 1988 in the Pacific Northwest Region (R-6). Experience includes 3 forests and the Regional Office as a Landscape Architect, 5 years as a District Ranger in R-4 and R-5, 2 yrs as Assistant Superintendent of the Sawtooth National Recreation Area, 10 years on the Wasatch-Cache N F. as Planning Staff Officer, Forest Plan Interdisciplinary Team Leader and a member of the Forest Management Team; from May 1988, Planning Staff Office, Forest Plan Interdisciplinary Team Leader and a member of the Forest Management Team on the Deschutes N.F.

Helen Maffei

Position:

Forest Pathologist

Education:

Ph D. in Plant Pathology, Colorado State University, 1989
M.S. in Forest Pathology, University of Michigan, 1982
B.S. in Botany, Michigan State University, 1981.

Experience:

1987-1989 Plant Pathologist with Forest Pest Management, Albuquerque, NM.
1983-1987 Research Assistant, Dept. of Plant Pathology and Weed Science, Colorado State University

Greg McClarren

Position:

Forest Community Relations and Environmental Affairs Staff

Education:

B.S. in Forest Management, Utah State University.

Experience:

More than twenty years in natural resource-related management, including positions in Arizona, British Columbia, California, Idaho, and Oregon. Ten years in public relations and National Environmental Policy Act program work for the Deschutes N F. Five years in land management and wilderness planning and public affairs on the Lower Minam Wilderness Study and the Hells Canyon National Recreation Area Seven years in timber management and silviculture.

Bob Parker

Position:

Transportation Planner

Education:

B.S. in Civil Engineering, University of Tennessee, 1961.

Experience:

Transportation Planning and Program Engineer, Deschutes N.F., 10 years; Interdisciplinary Team Member, Deschutes N F , 3 years; Assistant Forest Engineer, Francis Marion and Sumter N.F , 6 years; Civil Engineer, Jefferson N.F., 3 years; Civil Engineer, Allegheny N F., 3 years; Transportation Planner, Kentucky Department of Highways, 4 years. Professional experience has been in Interstate Route Location, Urban Transportation Planning, Forest Service Transportation Planning, Road and Facility Design and Construction, and current and future year programming.

Donald Pederson

Position:

Forest Timber Staff Officer

Education:

B S in Forest Land Management, University of Minnesota, 1972.

Experience:

1986-Present: Timber Staff Officer, Deschutes N.F.
1980-1986: Recreation Staff Officer, Deschutes N.F.
1975-1980: District Ranger, McKenzie Bridge District, Willamette N.F.
1971-1975: Timber Management Assistant, Mapleton District, Siuslaw N.F.
1967-1971: Forester, Oakridge District, Willamette N F.

Jewel H. Reid

Position:

Computer Clerk

Education:

2 years at Columbus College, Columbus, Georgia.

Experience:

Deschutes NF Forest Planning, 1 year; Creative Consultant, 3 years.

Bill Renison

Position:

Assistant Forest Engineer

Education:

B.S in Engineering Geology, University of California, Los Angeles, 1970
Graduate Studies in Hydrology, University of Idaho, 1972-73.
Registered Civil Engineer, State of Oregon, 1979-Present.

Experience:

Assistant Forest Engineer, Deschutes N.F., nine years; Assistant Forest Engineer, Ochoco N.F., two years; Road System Manager, Willamette N.F., two years; Civil Engineer, Deschutes N.F., three years; Highway Engineer, University of Idaho, one year; and six years in Transportation Engineering with private firms and local governments.

Gary Stelle

Position:

Assistant Fire Staff Officer

Experience:

27 years with the Forest Service, 9 years in Timber and Silviculture and the remainder in Fire, Fuels and Aviation. District Fire Management Officer on the Willamette and Winema National Forests. Member of an area or National Fire Management Team for the last 12 years.

Edward W. Styskel

Position:

Forest Wildlife Biologist

Education:

B S in Game Management, Humboldt State University, Arcata, California.

Experience:

1981- Present: Forest Wildlife Biologist, Deschutes N.F.
1977-1981: Forest Wildlife Biologist, Helena N F.
1973-1977: Forest Wildlife Biologist, Fremont N F.
1964-1973. Other range and wildlife assignments in Washington and Oregon

Richard Thomas

Position:

Writer-Editor

Education:

B A. in English Literature, San Fernando Valley State, Northridge, California, 1970.

Experience:

Two years with Deschutes N.F. Land Management Planning; seven years on the Deschutes N F. and two years on the Fremont N F , working in Fire Management and Dispatch

Mary West

Position:

Computer Assistant

Education:

B.A. in Business Information Systems, Linfield College, McMinnville, OR, 1988.

Experience:

1989-Present Forest GIS Coordinator.
1978-1989: Data Base Coordinator, Deschutes N.F. Work experience includes DBA for forest data base and Planning Grid Mapping System on Deschutes N.F.
1977-1978. Budget & Finance, Deschutes N.F.

Contributors no longer involved with the Deschutes N.F. Planning Process

Norm Adams, Forester Bend Ranger District, Deschutes N.F.
Bill Anthony, Operations Research Analyst/Economist Now with the Washington Office
Mary Arneson, Landscape Architect. Now with Mt. Hood N.F.
Herb Barth, Forester, Planning and Programming Staff Officer. Deceased.
Jack Berry, Writer/Editor Now with the Regional Office in Portland.
Steve Calish, Forest Economist. Now in Region 3.
Tom Carroll, Forest Economist Resigned from the Forest Service.
Vince Cegelka, Forest Planner Retired
Carl Davis, Forest Archaeologist Now with the Willamette N.F
Robert Eidenberger, Forester, Assistant Planner. Deceased
Jim Galeba, Forester, Recreation Now with the Winema N.F.
Kendrick Greer, Operations Research Analyst. Now with the Regional Office in Fort Collins, Colorado.
Gary F. Kellog, Soil Scientist Now in Region 1.
Bruce McCammon, Hydrologist. Now with the Mt Hood N.F.
Joan McNab, Writer/Editor Now with the Lolo N F
Larry Mullen, Wildlife Biologist, Forest Planner. Now in the Regional Office for Region 2, Denver, Colorado.
Ernie Nelson, Timber Management Assistant. Now with Route N.F.
Steve Sherwood, Economist Now in Region 8.
Harold D. Siegworth, Lands and Minerals Staff Officer. Retired.
Anthony Smith, Forestry Technician. Retired.
Gordon White, Assistant Staff Officer. Retired.
Jerry T. Williams, Forester - Fuels Specialist Now with the Lolo N.F.
Mike Znerold, Forest Silviculturalist. Now with the Regional Office for Region 2, Denver, Colorado.

List of Agencies, Organizations, and Persons to whom Copies of the Documents have Been Sent

Copies of the Final Environmental Impact Statement (FEIS), maps, Appendices, and Forest Plan were distributed to the following individuals, organizations, and Government agencies who specifically requested the complete set of documents The mailing list of people and organizations interested in the planning effort is much larger. Because of the cost of producing and mailing the complete FEIS and Forest Plan, a shorter "Reviewer's Guide" was prepared. It contains the same information in an abbreviated version. Those individuals requesting information on the Forest Plan, or who attended prior public meetings, were mailed a "Reviewer's Guide". The distribution list for those receiving the "Reviewer's Guide" is not included in this document due to its considerable length The list, however, is available for examination at the Forest Supervisor's Office in Bend, Oregon

Anyone requesting a complete set of documents will be mailed a loaner copy or referred to a local library.

Federal Agencies

Advisory Council on Historic Preservation, Washington, D C.
Agriculture, Department of

Forest Service
Forest Service, Washington, D C
Region 1, Missoula, Montana
Region 2, Lakewood, Colorado
Region 3, Albuquerque, New Mexico
Region 4, Ogden, Utah
Region 5, San Francisco, California
Region 6, Portland, Oregon
Region 8, Atlanta, Georgia
Region 9, Milwaukee, Wisconsin
Region 10, Juneau, Alaska

National Forests
Colville, Colville, Washington
Deschutes, Bend, Oregon
Fremont, Lakeview, Oregon
Gifford-Pinchot, Vancouver, Washington
Malheur, John Day, Oregon
Mt Baker-Snoqualmie, Seattle, Washington
Ochoco, Prineville, Oregon
Okanogan, Okanogan, Washington
Olympic, Olympia, Washington
Rogue River, Medford, Oregon
Siskiyou, Grants Pass, Oregon
Siuslaw, Corvallis, Oregon
Umatilla, Pendleton, Oregon
Umpqua, Roseburg, Oregon
Wallowa-Whitman, Baker, Oregon
Wenatchee, Wenatchee, Washington
Willamette, Eugene, Oregon
Winema, Klamath Falls, Oregon
George Washington, Harrisonburg, Virginia
Salmon, Salmon, Idaho
San Juan, Durango, Colorado
Sumter, Columbia, South Carolina
Silviculture Laboratory, Bend, Oregon
Pacific Northwest Station, Portland, and Corvallis, Oregon
WESTFORNET - North, Seattle, Washington
WESTFORNET - South, Berkeley, California

Animal and Plant Health Inspection Service, Hyattsville, MD
Agricultural Research Service, Oregon/Washington
Agricultural Stabilization and Conservation Service, Washington, D C.
Office of Equal Opportunity, Washington, D.C.
Rural Electrification Administration, Washington, D.C.
Soil Conservation Service, Washington, D C.
State Conservationist, Bend, Oregon
Commerce, Department of, Washington, D C.
National Marine Fisheries Service, Portland, Oregon
Defense, Department of
Deputy Assistant Secretary of Defense, Washington, D C.
U S Air Force, Washington, D C.
Explosives Safety Board, Alexandria, VA
Army Corps of Engineers, Washington, D C., Portland, Oregon
U S Navy, Washington, D C
Office of Chief of Navy Operations, Washington, D C.
Naval Oceanography Div., U S Naval Observatory, Washington, D C.
Office of Economic Opportunity, Washington, D.C.
Energy, Department of, Washington, D.C.
Bonneville Power Administration, Portland, Oregon
Environmental Protection Agency, Washington, D C.
Office of Environmental Review, Washington, D.C.
EIS Review Coordinator, Seattle, Washington
Federal Energy Regulatory Commission, Washington, D C.
General Services Administration, Washington, D C
Health and Human Services, Washington, D.C
Housing and Urban Development, Washington, D C.
Regional Administrator X, Seattle, Washington
Interior, Department of, Washington, D C.
Bureau of Land Management, Prineville, Oregon
Bureau of Indian Affairs, Portland, Oregon
Crater Lake National Park, Crater Lake, Oregon
Fish and Wildlife, Portland, Oregon
Interstate Commerce Commission, Washington, D C
Labor, Department of, Washington, D C.
National Aeronautics and Space Administration, Washington, D C.
National Endowment for the Arts, Washington, D C.
New England River Basins Commission, Boston, Massachusetts
Ohio River Basins Commission, Lexington, Kentucky
Tennessee Valley Authority, Knoxville, Tennessee

Transportation, Department of, Washington, D C.
Coast Guard, Washington D C , and Seattle, Washington
Federal Aviation Administration, NW Region, Seattle, Washington
Federal Highway Administration, Portland, Oregon
Federal Railroad Administration, Washington, D C.

Federal Congressional Delegation

U S. Representatives
Honorable Les AuCoin
Honorable Denny Smith
Honorable Bob Smith
Honorable Jim Weaver
Honorable Ron Wyden
U S Senators
Honorable Mark O Hatfield
Honorable Bob Packwood

State, County and Local Agencies

Governor, State of Oregon
Legislative Assembly
Honorable Bill Bellamy, State Representative
Honorable Peter Brockman, State Senator
Honorable Ken Jernstedt, State Senator
Honorable Thomas Throop, State Representative, Bend, Oregon

Archaeological Preservation Commission, West Linn
Department of Economic Development, Bend
Department of Energy, Salem
Department of Environmental Quality, Bend
Department of Environmental Quality, Portland
Department of Fish and Wildlife, Bend
Department of Forestry, Salem
Department of Forestry, Sisters
Department of Forestry, Prineville
Department of Environmental Quality, Portland
Land Conservation and Development Commission, Salem
Department of Geology and Minerals Industry, Portland
Oregon Environmental Council, Portland
State Clearinghouse, Intergovernmental Relations Division
Bend Metro Parks and Recreation District, Bend
City of Eugene, Eugene
Confederated Tribes of the Warm Springs Reservation, Warm Springs
Deschutes County Board of Commissioners
Jefferson County Commission, Madras
Jefferson County Planning, Madras
Klamath County Commissioners, Klamath Falls
Lake County Commission, Lakeview
Redmond Chamber of Commerce, Redmond
Sisters Planning Commission, Sisters
Bend City Commissioners, Bend
C O Intergovernmental Council, Redmond
City of Redmond, Redmond
City Planner, Bend
Deschutes County Planning, Bend
Deschutes County Commissioners, Bend
Department of Natural Resources, Olympia, Washington
Washington State Department of Ecology, NEPA Coordinator
Division of Environment, Coeur D'Alene, Idaho

Businesses

AMAX Exploration, Inc., Golden, Colorado
American Plywood Association, Tacoma, Washington
Ames Associates, Inc., Lake Oswego, Oregon
Aminoil USA Inc., Santa Rosa, California
Aminoil USA Inc., Huntington Beach, California
AMOCO Products Company, Denver, Colorado
AMOCO Production Company, Denver, Colorado
Anadarko Products Company, Houston, Texas
ARCO Exploration Company, Denver, Colorado
Association of Oregon Loggers, Inc., Springfield, Oregon
Atlantic Richfield, Bakersfield, California
Atlantic Richfield Co , Dallas, Texas
Black Butte Ranch, Homeowners Association, Sisters, Oregon
Boise Cascade Corporation, Boise, Idaho
Brooks Resources, Bend, Oregon
California Energy Co , Santa Rosa, California
Cascadia Exploration Corporation, Escondido, California
Chevron Resources, San Francisco, California
Chevron Resources Co., San Francisco, California
Chevron U S.A. Inc., Concord, California
Cities Service Co , Bakersfield, California
Cities Service Oil Company, Houston, Texas
Conoco Inc , Houston, Texas
Crescent Lake Association, Pleasant Hill, Oregon
Crossroads Property Owners Association, Salem, Oregon
Delta Funds, Inc., Philadelphia, Pennsylvania
Deschutes Economic Development Commission, Redmond, Oregon
Diamond International, Bend, Oregon
Exxon Company USA, Los Angeles, California
Exxon Company USA, Denver, Colorado
Francana Resources, Inc., Calgary, Canada
General American Oil Company of Texas, Dallas, Texas
Geothermal Resources Council, Davis, California
Getty Oil Company, Bakersfield, California
Gilchrist Timber Company, Gilchrist, Oregon
GRI International Inc., Menlo Park, California
Gulf Mineral Resources, Denver, Colorado
Gulf Oil Exploration, Bakersfield, California
Harold Barclay Logging, Inc., Sisters, Oregon
Hawthorne Oil Company, Casper, Wyoming
Industrial Forestry Association, Portland, Oregon
INTASA, Menlo Park, California
International Snowmobile Ind Assn , Washington, D C.
Louisiana-Pacific Corporation, Prineville, Oregon
Magma Power Company, Los Angeles, California
Mapco Geothermal, Tulsa, Oklahoma
Marathan Oil Company, Anchorage, Alaska
Mason, Bruce, and Girard, Inc., Portland, Oregon
MCO Resources, Inc., Los Angeles, California
Metolius Summer Homeowners Association, Arch Cape, Oregon
Milius and Edgar Log Scaling Service, Bend, Oregon
Mxt Bag, Portland, Oregon
Mobil Oil Corporation, Denver, Colorado
MONO Power, Rosemead, California
Monsanto Company, Tualatin, Oregon
Mt Bachelor, Inc., Bend, Oregon
National Forest Products Association, Washington, D C.
Northwest Mining Association, Spokane, Washington
Northwest Pine Association, Spokane, Washington
Northwest Timber Association, Eugene, Oregon
Occidental Geothermal, Inc., Bakersfield, California
Occidental Petroleum, Bakersfield, California
Ochoco Lumber Company, Prineville, Oregon
Oregon Hunter's Association, Bend, Oregon
Pacific Gas Transmission, Spokane, Washington
Pacific Gas Transmission Company, San Francisco, California
Pacific Northwest Ski Association, Seattle, Washington

Pacific Research Management, Inc , Los Angeles, California
Phillips Petroleum Company, Salt Lake City, Utah
Phillips Petroleum Company, Bartlesville, Oklahoma
Phillips Petroleum Company, Englewood, Colorado
PNW River Basins Commission, Vancouver, Washington
Portland General Electric, Portland, Oregon
R C Dick Geothermal Corporation, San Rafael, California
Republic Geothermal, Santa Fe Springs, California
Republic Geothermal Inc , Santa Fe Springs, California
SAI Engineers, Inc , Santa Clara, California
SEA-TAC Geothermal, Portland, Oregon
Shell Oil Company, Ventura, California
Southland Royalty Company, Fort Worth, Texas
Southwest Forest Industries, Phoenix, Arizona
SUNDECO, Dallas, Texas
Sunmark Exploration Company, Ventura, California
Tenneco Oil Company, Bakersfield, California
Texaco Incorporated, Englewood, Colorado
Texaco Incorporated, Los Angeles, California
Thermal Power Company, San Francisco, California
Tumalo Irrigation District, Bend, Oregon
Union Oil Company, Los Angeles, California
Union Oil Company of California, Los Angeles, California
Union Oil Company of California, Santa Rosa, California
Western Forestry and Conser Assn, Portland, Oregon
Western Environmental Trade Association, Portland, Oregon
Western Forest Industries, Association, Portland, Oregon
Western Land Development, Lake Oswego, Oregon
Western Oil and Gas Association, Los Angeles, California
Western Wood Products Association, Portland, Oregon
Weyerhaeuser Company, Klamath Falls, Oregon
Weyerhaeuser Corporation, Tacoma, Washington
Willamette Industries-Korpine, Bend, Oregon
George R Priest, Portland, Oregon

Special Interest Groups

Archaeological Associates Northwest Inc , Portland, Oregon
Bend Chamber of Commerce, Bend, Oregon
Cascade Holistic Economic Consul , Eugene, Oregon
Central Cascade Conservation, Salem, Oregon
Central Oregon Audubon Chapter, Bend, Oregon
Chemeketans, Salem, Oregon
COPE, Bend, Oregon
Defenders of Wildlife, Medford, Oregon
Earth Power Corporation, Tulsa, Oklahoma
ECO - Northwest, Limited, Eugene, Oregon
Federation of Western Outdoor Clubs, Seattle, Washington
Friends of the Earth, Seattle, Washington
Friends of the Earth, San Francisco, California
Friends of the Three Sisters Wilderness, Inc , Eugene, Oregon
Klah Klahnee Wildlife Sanctuary, Sisters, Oregon
Lane County Audubon Society, Eugene, Oregon
League of Women Voters, Sunriver, Oregon
Lively Livestock 4-H Club, LaGrande, Oregon
Mazamas, Portland, Oregon
Moon Country Snowmobilers Inc , Bend, Oregon
National Wildlife Federation, Washington, D C
National Wildlife Federation, Portland, Oregon
Natural Resource Defense Council, San Francisco, California
Nature Conservency, Portland, Oregon
Odell Lake Summer Home Association, Eugene, Oregon
Old Cascades Wilderness Commission, Corvallis, Oregon
Oregon Archaeological Preservation Commission, West Linn, Oregon
Oregon Environmental Council, Portland, Oregon
Oregon Equestrail Trails, Tigard, Oregon
Oregon High Desert Museum, Bend, Oregon
Oregon Motorcycle Riders Association, Oregon City, Oregon
Oregon Summer Home Association, Salem, Oregon
Oregon Wilderness Coalition, Portland, Oregon
Oregon Wilderness Coalition, Eugene, Oregon
Oregon Forest Protection Association, Portland, Oregon
Oregon Natural Heritage, Portland, Oregon
Oregon Natural Resources Council, Eugene, Oregon
Pacific Northwest Ski Association, Seattle, Washington
Proctor, Puckett and Fairclo, Klamath Falls, Oregon
Sierra Club, San Francisco, California
Sierra Club, Eugene, Oregon
Sierra Club Legal Defense Fund, San Francisco, California
Sierra Club of Oregon, Salem, Oregon
Sierra Club-Juniper Group, Bend, Oregon
Sierra Club, Many Rivers Group, Eugene, Oregon
Sierra Club, Northwest Office, Seattle, Washington
Sunriver Owners Association, Sunriver, Oregon
Sunriver Properties, Inc , Sunriver, Oregon
Tahoma Audubon Society, Tacoma, Washington
The Mountaineers, Seattle, Washington
The Wildlife Society, Corvallis, Oregon
Washington State Horsemen, Alderwood Manor, Washington
Wilderness Society, Seattle, Washington
Wilderness Society, Washington, D C
Wildlife Management Institute, Portland, Oregon
Willdan Association, Tigard, Oregon
1000 Friends of Oregon, Portland, Oregon

Foreign Countries

Bureau DeRecherrches, 45060 Orleans Cedex, France

News Media

The Bulletin, Bend, Oregon
Eugene Register-Guard, Eugene, Oregon
Oregonian, Portland, Oregon
Oregonian Correspondent, LaPine, Oregon

Schools and Libraries

Agricultural Research Service, Pullman Washington
Association for Oregon Archaeology, Eugene, Oregon
Central Oregon Community College Forestry Dept , Bend, Oregon
Central Oregon Community College Library, Bend, Oregon
Denver Public Library, Denver, Colorado
Deschutes County Library, Bend, Oregon
Dean, Col of Science, Corvallis, Oregon
Forestry and Outdoor Recreation, Logan, Utah
Lake County Library, Lakeview, Oregon
Land, Air, Water, Eugene, Oregon
Lewis and Clark College, Portland, Oregon
Oregon Student, Portland, Oregon
Oregon State University School of Forestry, Corvallis, Oregon
Portland State University, Portland, Oregon
University of Oregon Library, Eugene, Oregon
University of Oregon Survival Center, Eugene, Oregon
University of Florida, Gainesville, Florida
University of Washington, Seattle, Washington
Utah State University, Logan, Utah
Washington State University, Pullman, Washington
Whitman College, Walla, Washington

Individuals

S Ackerman, Portland, Oregon
Jas Jeffrey Adams, Portland, Oregon
W E Andyke, Camp Sherman, Oregon
L H Armour, Chicago, Illinois
Dennis Baird, Moscow, Idaho
Sherman M Becker, New York, New York
Robert A. Bernhard, New York, New York
Jim Boyle, Corvallis, Oregon
Mr & Mrs F B Bunn, Honolulu, Hawaii
Rob Burnett, Portland, Oregon
Heather Cook, Toronto, Ontario, Canada
Michael Christie, Coeur d'Alene, Idaho
Jim Curtis, Bend, Oregon
Henry Darlington Jr , New York, New York
C Girard Davidson, Portland, Oregon
Joan K. Davidson, New York, New York
Sylvia A. Davidson, Portland, Oregon
Robert B Davis, New York, New York
D T Devlin, West Vancouver, B C , Canada
Paul Dewey, Sisters, Oregon
William C. Douglas, Chicago, Illinois
Betsy R Dwyer, Eugene, Oregon
Dr Sheldon Edner, Portland, Oregon
Bill Ellis, Bend, Oregon
Roger Fight, Portland, Oregon
C E Francis, Bend, Oregon
Ronald L. Gallatin, Oceanside, New York
W Gaskins, Sisters, Oregon
Marti Gerdes, Bend, Oregon
Daniel L. Goldy, Portland, Oregon
Sarah Greene, Corvallis, Oregon
Mr B L. Harris, LaGrande, Oregon
Lawrence C. Hart, Red Bluff, California
Joan Hett, PhD, Seattle, Washington
Fred Hirsh, Monmouth, Oregon
John W Hook, Salem, Oregon
Fred Hornbeck, Bend, Oregon
S Kyle Huber, Portland, Oregon
Charles N Huseman Sr , Washington, D C
Bill Johnson, Albany, Orgon
Tom Johnson, Camp Sherman, Oregon
Bill Keil, Portland, Oregon
Edward Kelley, Salem, Oregon
Chris Kittell, Pacific City, Oregon
Terry A. Kramer, New York, New York
A. E Levy, San Francisco, California
Leeanne G MacColl, Portland, Oregon
Bob Main, Bend, Oregon
R W Markley, Jr , Washington, D C
Mr & Mrs George W Moffit, Jr , Bryn Mawr, Pennsylvania
C F Murer, Denver, Colorado
Larry Nall, Bend, Oregon
Carl A. Newport, Portland, Oregon
Earl E Nichols, Bend, Oregon
V M O'Net, Jr , New York, New York
Randall O' Toole, Eugene, Oregon
H H S Phillips, Hartwell, Georgia
Bob Pickard, Bend, Oregon
George R Priest, Portland, Oregon
Starr W Reed, Bellevue, Washington
Jerry L. Roberts, Mill Valley, California
Bob Robinson, Bend, Oregon
Joe Ross, Portland, Oregon
John S Runnells, Chicaco, Illinois
Mr Fred Sawyer, Portland, Oregon
Paul F. Scheibe, Ranco Santa Fe, California
Joseph C. Schott, Grand Forks AFD, North Dakota
Rocks L. Senger, Seattle, Washington
Ronald L. Simon, Longview, Washington
H Somers, Portland, Oregon
Jim Spitz, Bend, Oregon
Edward B Towne, Jr , Sacramento, California
Don Tryon, Prineville, Oregon
Dick VanDerschaff, Portland, Oregon
Richard Toll Ward, Sisters, Oregon
George W. Waters, Fairhaven, New Jersey
Gary Weston, Camp Sherman, Oregon
Floyd W Wisely, Enterprise, Oregon

Glossary

Glossary

Acre Equivalent

A conversion factor applied to structures or actual acres of wildlife habitat improvement to show that a larger area of habitat was improved rather than just the treated acres.

Acre Foot (Ac. Ft.)

A unit for measuring a volume of water. Quantity of water required to cover 1 acre to a depth of 1 foot.

Activity

A measure, course of action, or treatment that is undertaken to directly or indirectly produce, enhance, or maintain forest and rangeland outputs or achieve administrative or environmental quality objectives FSH 1309 11, The Management Information Handbook, sets forth Forest Service activity definitions, codes, and units of measure.

Allocatable Unit

Areas of land which for social, managerial, and/or political reasons should be allocated as a whole or not at all to a particular management area

Allowable Sale Quantity (ASQ)

The quantity of timber that may be sold from the area of suitable land covered by the Forest Plan, for a time period specified by the plan This quantity is usually expressed on an annual basis as the "average annual allowable sale quantity " (36 CFR 219.3)

Alternative

One of several policies, plans, or projects proposed for decision making.

Amenity

An object, feature, quality, or experience that gives pleasure or is pleasing to the mind or senses. Amenity value is typically used in land-use planning to describe those resource properties for which market values (or proxy values) are not or cannot be established.

Analysis Area

A delineated area or land subject to analysis of (1) responses to proposed management practices in the production, enhancement, or maintenance of forest and rangeland outputs and environmental quality objectives, and (2) economic and social impacts.

Analysis of the Management Situation

A step required under the National Forest Management Act in which the Forest determines its ability to supply goods and services to meet society's demand for them.

Animal Unit (AU)

An animal unit is a 1,000 pound mature cow, or its equivalent based on an average daily forage consumption of 26 pounds dry matter per day.

Animal Unit Month (AUM)

The forage requirement for one month (26 pounds x 30.5 days = 800 pounds).

Livestock Class AUM Factors

Mature Cow 1.00

Mature Cow w/Nursing Calf 1.32

Yearling (9-18 months) 0.70

Bull 1.50

Mature Sheep 0.20

Ewe w/lamb 0.30

Horse 1.20

ATVs

All Terrain Vehicles - Rubber tire, three and four wheel, non-highway, recreational vehicles.

Basal Area

The cross-sectional area of a tree, usually measured at breast height (4-1/2 feet above the ground). Basal area can be determined for one tree or for all the trees on an acre. The basal area per acre is a measure of the density of tree growth on that acre. Basal area is measured in square feet.

Base Sale Schedule

A timber sale schedule formulated on the basis that the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned

sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than the long-term sustained yield capacity (36 CFR 219.3)

Benchmark

The process whereby a Forest determines it capability to supply outputs both with and without legal requirements. A determination of the maximum capability within which Alternatives are developed

Biological Potential

The maximum amount of sustainable wood fiber obtainable by application of intensive management practices to acres classified as commercial forest land

Board Foot

A volume of solid wood, 1-foot square and 1-inch thick

Capability

The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils, and geology, as well as on the application of management practices, such as silviculture or protection from fire, insects, and disease.

Capability Area

An area of land which has homogeneous ability to produce various outputs

Catastrophic Situations

These situations include the effects from fire, insects and disease The effects are significant, generally widespread, and detrimental to the environment in which they occur.

CEQ

Council on Environmental Quality.

Chargeable Timber Volume

All volume included in the growth and yield projections for the selected management prescriptions used to arrive at the allowable sale quantity, based on regional utilization standards.

Consistent with the definition of timber production, planned production of fuelwood is not included in the allowable sale quantity and therefore is nonchargeable.

Chip Type or Chippable

Refers to a stand of lodgepole pine in which most live stems are under 8.0 inches diameter at breast height or are merchantable dead and sometimes chipped for use as pulpwood.

CCC

Civilian Conservation Corps

Clearcut

A cut which removes all trees from a designated area at one time

Closed Road

A road where all motor vehicle use has been eliminated through the use of gates, barricades, or other lower-cost methods such as obscuring the road entrance with rocks, logs, and brush. Roads may also be closed through cooperative agreements with the Oregon Department of Fish and Wildlife where entire land areas are closed for vehicle access during specific time periods, such as hunting season, but leave a few roads open for vehicle access (referred to as "green dot closures" because a green dot on a post indicates an open road) Normally, a closed road is available for hikers and mountain bikes (non-motorized). When supported by analysis, some closed roads may allow use of motorcycles and ATV's, seasonally or year-round. Allowable uses will be posted at the road entrance.

CMAI

Culmination at mean annual increment.

Commercial Forest Land

Forest land that is producing or is capable of producing crops of industrial wood and (a) has not been withdrawn by Congress, the Secretary, or the Chief; (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity, or watershed conditions; and (c) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that adequate restocking can be attained within 5 years after final harvesting.

Commercial Thinning

A cut in a stand under rotation age designed to remove excess merchantable trees. The objective is to place the growth capability of the site on the remaining leave trees.

Commodities

Tangible and intangible products (i e , outputs of wood, water, wildlife, visuals, etc.) that can be turned to commercial or other advantage

Common Minerals

Materials such as sand, stone, gravel, pumice (except block pumice), pumicite, or cinders.

Compaction

Compaction of soil increases soil bulk density and decreases porosity as a result of the application of mechanical forces such as weight and vibration.

Concern

A point, matter, or question raised by management that must be addressed in the planning process.

Confined Fire

To restrict the fire within determined boundaries established either prior to the fire, during the fire, or in an escaped fire situation analysis

Contained Fire

To surround a fire, and any spot fires therefrom, with control line, as needed, which can reasonably be expected to check the fire's spread under prevailing and predicted conditions.

Controlled Fire

To complete the control line around a fire, any spot fires therefrom, and any interior islands to be saved; burn out any unburned area adjacent to the fire side of the control line; and cool down all hot spots that are immediate threats to the control line, until the line can reasonably be expected to hold under foreseeable conditions.

Conversion Period

A transition period during which an unregulated forest structure is converted to a regulated one. When regulated, the forest will have a distribution of stand age and size classes, providing approximately equal periodic harvests

Corridor

A linear strip of land identified for the present or future location of transportation or utility rights-of-way within its boundaries.

Cost Effective

Achieving specified outputs or objectives under given conditions for the least cost.

Cost Efficiency

The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs including environmental, economic, or social impacts, are not assigned monetary values but are achieved at specified levels in the least cost manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates-of-return may be appropriate. (36 CFR 219.3)

Cover/Forage Ratio

The ratio, in percent, of the amount of area in forage condition to that area in cover condition; the criteria by which potential deer and elk use of an area is judged.

Cover

Vegetation used by wildlife for protection from predators, or to ameliorate conditions of weather, or in which to reproduce.

Created Opening

Created openings are openings in the forest created by the silvicultural practices of shelterwood regeneration cutting at the final harvest, clearcutting, seed tree cutting, or group selection cutting

Culmination of Mean Annual Increment (CMAI)

The age at which the average annual growth is greatest for a stand of trees. Mean annual increment is expressed in cubic feet measure and is based on expected growth according to the management intensities and utilization standards assumed in accordance with 36 CFR 219.16(a)(2)(i) and (ii). Culmination of mean annual increment includes regeneration harvest yields and any additional yields from planned intermediate harvests.

Cultural Resources

The remains of sites, structures, or objects used by humans in the past; historical or archaeological.

Current Direction

As used in the DEIS it is continuing on with the 1978 Land Management Plan for the Deschutes National Forest and the 1974 Timber Management Plan as revised in 1980 and 1984.

d.b.h.

Diameter at breast height. The diameter of a tree measured 4 feet 6 inches from the ground.

d.i.b.

Diameter inside bark.

DEIS

Draft Environmental Impact Statement.

Demand

The amount of an output that users are willing to take at a specified price, time period, and condition of sale

Departure

A schedule which deviates from the principle of nondeclining flow by exhibiting a planned decrease in the timber sale and harvest schedule at any time in the future.

Depauperate

Poorly developed in physical form

Displacement (Soil)

Soil displacement is the removal and horizontal movement of soil from one place to another by mechanical forces such as a blade. Detrimental displacement is the removal of more than 50 percent of the topsoil or humus enriched A1 and/or AC horizons from an area of 100 square feet or more which is at least 5 feet in width.

Mixing of surface soil layers by discing or disc-plow operations, or removal of surface soil layers by hand scalping are not considered as detrimental displacement.

Developed Recreation

Recreation use that occurs within a site or facility specifically established and constructed for public recreation purposes. Activities commonly included are camping, picnicking, resort use, and downhill skiing, but can also include parking areas, trailheads, boat launching sites, etc.

Discounting

An adjustment, using a discount rate for the values of money over time so that costs and benefits occurring in the future are reduced to a common point in time, usually the present, for comparison

Dispersed Recreation

Recreation use outside of a developed recreation site, ranging from scenic driving to backpacking.

Diversity

The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan. (36 CFR 219.3)

Ecoclass

A grouping of one or more naturally occurring plant community types.

Ecosystem

The interacting system of a biological community and its nonliving environment.

Effects

Environmental consequences as a result of a proposed action. Included are direct effects, which are caused by the action and occur at the same time and place, and indirect effects, which are caused by the action and are later in time or further removed in distance, but which are still reasonably foreseeable Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as used in this EIS are synonymous. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic quality, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Impacts may result from actions that may have both beneficial and detrimental effects, even if the agency believes the effects will be beneficial (40 CFR 1508.8)

Effect, Physical, Biological

The change, positive or negative, in the physical or biological conditions which directly or indirectly results from an activity, project, or program.

Effect, Economic

The change, positive or negative, in economic conditions, including the distribution and stability of employment and income in affected local, regional, and national economies, which directly or indirectly result from an activity, project, or program

Effect, Social

The change, positive or negative, in social and cultural conditions which directly or indirectly result from an activity, project, or program

Empirical Yield Table

A table reflecting the existing standing timber volumes today and how they would grow in the future, under various timber management regimes.

Endangered Species

Any species listed in the Federal Register, which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of the Act would present an overwhelming and overriding risk to man.

Environment

The sum of all external conditions and influence affecting the life, development, and survival of an organism.

Escaped Fire

A fire which has exceeded, or is anticipated to exceed, initial action capabilities or the key fire management direction or prescription.

Escaped Fire Situation Analysis (EFSA)

A decision analysis of those factors influencing suppression of an escaped fire from which a plan of action will be developed. The analysis includes the development of alternative suppression strategies and net effect of each.

Even-Aged Management

The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together Managed even-aged forests are characterized by a distribution of stands of varying ages (and, therefore, tree sizes throughout the forest area). The difference in age between trees forming the main canopy level of a stand usually does not exceed 20 percent of the age of the stand at harvest rotation age. Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands.

Even Flow

Maintaining a relatively constant supply of timber from year to year.

Experimental Forest

A small portion of the Deschutes National Forest known as the Pringle Falls Experimental Forest which is used as a field laboratory for research

Extensive Timber Management

A relatively low level of capital is invested in timber practices intended to increase wood fiber production.

Final Overstory Removal

Removal of all of a mature overstory from a manageable immature understory timber stand.

Fire Intensity

The severity of a given fire. Low intensity fires average flame lengths under 4 feet and high intensity fires average flame lengths over 4 feet.

Fire Management Effectiveness Index (FMEI)

(FMEI) = (Fire Prog + FFF $-Fuels Capital Invest. $ + NVC $) x A

M Acres Protected x SI x B

When:

A = Consumer Prince Index (19769 $ = 1.0)

B = A potential inter-unit workload value now established at 1.0.

SI = Severity Index fixed at 1.0 for planning purposes.

NVC = Net Value Change, expressed as a cost, usually a positive number.

Fire Prog = Fir program, presuppression dollars.

FFF = Fighting forest fire dollars.

Floodplains

The lowland and relatively flat areas adjoining inland and coastal waters, including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year.

Forage

All browse and nonwoody plants available to livestock or wildlife for grazing or harvested for feed.

Forest Influence Area

The area surrounding a National Forest whose social, economic, and/or environmental condition is significantly affected by activities occurring on the Forest.

FORPLAN

The forest planning model A linear programming software package used to analyze planning decisions regarding land use patterns, capital investment, and timber harvest scheduling.

Fuel Break

A strategically located strip or block of land on which the native vegetation has been modified by appropriate fuel treatment methods to a lighter or less dense fuel type. Fuel breaks break up the continuity of heavy, hazardous fuels so that fires burning to them can be readily controlled.

Fuel Hazard

A supply of vegetative fuel that forms a special threat of ignition or suppression difficulty.

Fuel Treatments

Levels and methods of fuels treatment will be guided by the resource objectives within the Management Area.

Geographical Information Systems (GIS)

Systems for entering, storing, analyzing, and retrieving spatial information. Technology used in mapping and showing interrelationships between Forest resources.

Geothermal Energy

Internal heat from the earth.

Habitat

The place where a plant or animal naturally or normally lives or grows

Harvest Cutting Method

A combination of interrelated actions whereby forests are tended, harvested, and replaced. The combination of management practices used to manipulate the vegetation results in forests of distinctive form and character. Harvest cutting methods are classified as even-aged and uneven-aged.

Hydrologic

Pertaining to the quantity, quality, and timing of water yield from forested lands.

Hydrophobicity

The inability/resistance to absorb water.

Input/Output Analysis

A technique for analyzing the interdependence of producing and consuming sectors in an economy.

Integrated Pest Management (IPM)

A process for selecting strategies to regulate forest pests in which all aspects of a pest/host system are studied and weighed. The information considered in selecting appropriate strategies includes the impact of the unregulated pest population on various resources values, alternative regulatory tactics and strategies, and benefit/cost estimates for these alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pest host system and consist of a combination of tactics such as timber stand improvement plus selective use of pesticides. A basic principle in the choice of strategy is that it be ecologically compatible or acceptable. (36 CFR 219.3)

Integrated Resource Area (IRA)

A geographical division of the forest which provides for a logical consideration of interactive effects of management activities.

Intensive Timber Management

A relatively high level of capital investment in timber management practices intended to increase wood fiber production.

Interdisciplinary

The integrated use of natural and social sciences and the environmental design arts in planning and decision making.

Intensive Forest Management

A high investment level of timber management that envisions initial harvest, regeneration, with genetically improved stock, control of competing vegetation, fill-in planting, precommercial thinning as needed for stocking control, one or more commercial thinnings, and final harvest.

Intermingled Ownerships

Lands within the National Forest boundaries or surrounded by National Forest lands that are owned by private interests or other government agencies. Because of early land grants, these lands frequently are in checkerboard ownership patterns.

Irretrievable

Applies to losses of production, harvest, or use of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time an area is used as a winter sports site If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible

Irreversible

Applies primarily to the use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity, that are renewable only over long periods Irreversible also includes loss of future options.

Known Geothermal Resource Area (KGRA)

An area in which the geology, nearby discoveries, competitive interests, or other indicators would, in the opinion of the Secretary of Interior, engender a belief in men who are experienced in the subject matter that the prospects for extraction of geothermal steam or associated geothermal resources are good enough to warrant expenditures of money for that purpose Under these conditions the leasing would be on a competitive bid basis.

Land Allocation

The decision to use land for various resource management objectives in order to best satisfy the planning process issues, concerns, and opportunities, and meet assigned forest output targets

Land Capability

A measure of the capability of the land to produce goods and services without imposed restraints, such as lack of manpower and finances or other priority uses and without damage to the land

Land Suitability

A measure of the suitability of land, as it exists in natural condition, for a single resource use or combination of uses

Land Type

Units of land with similar vegetative soil, and landform characteristics and capabilities, which respond similarly to management activities.

Leasable Minerals

Generally include minerals such as oil, gas, oil shale, coal, potassium, sodium, phosphates, sulphur, and geothermal. The Deschutes National Forest appears to have potential only for geothermal and possibly oil and gas

Locatable Minerals

Those hard rock minerals which can be obtained by filing a claim on Public Domain or National Forest System lands reserved from the Public Domain. In general, the locatable minerals are those hard rock minerals which are mined and processed for the recovery of metals (e.g. gold, silver, copper), but may also include certain nonmetallic minerals and uncommon varieties of mineral materials.

Long-Term Sustained-Yield Timber Capacity (LTSY)

The highest uniform wood yield from lands being managed for timber production that may be sustained under a specified management intensity consistent with multiple-use objectives.

M

The Roman numeral for 1000.

Marketing Area

The area in which most Forest resources are delivered for primary manufacturing. For the Deschutes NF this area would be Deschutes County.

Maximum Modification

A visual quality objective meaning human activities may dominate the characteristic landscape but should appear as a natural occurrence when viewed as background.

MBF

Thousand board feet (MMBF - million board feet)

Megawatt

One thousand kilowatts.

MMCF

One million cubic feet. New timber management plans express tree or log volume on a cubic foot basis because it is a truer representation of actual volume of wood fiber than is board foot volume A cubic foot is a volume of wood equivalent to a cube 12 inches on all sides

Managed Stand

A stand of trees in which stocking level control is applied to achieve maximum growth

Managed Yield Table

A table showing, for a given species on a given site, the progressive development of a managed stand at periodic intervals covering the greater part of its useful life It usually includes average diameter, basal area, number of trees, standing volume, and harvest volumes for a specific timber management regime.

Management Areas (MA)

A unit of land allocated to emphasize a particular resource, based on the capability of the area.

Management Concern

An issue, problem or a condition which constrains the range of management practices identified by the Forest Service in the planning process.

Management Direction

A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them.

Management Intensity

A management practice or combination of management practices and associated costs designed to obtain different levels of goods and services.

Management Practice

A specific activity, measure, course of action, or treatment.

Management Prescription

Management practices selected and scheduled for application on a specific area to attain multiple-use and other goals and objectives.

Market Resources

Products derived from renewable and nonrenewable resources that have a well-established market value, for example, forage, timber, water, and minerals.

Minimum Viable Population

The low end of the viable population range.

Mitigation

Includes: (a) avoiding the impact altogether by not taking a certain action or parts of an action, (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and, (e) compensating for the impact by replacing or providing substitute resources or environments. (40 CFR Part 1508.20)

Mixed Conifer

A stand of coniferous trees in which no single species makes up more that 50 percent of the composition of the stand.

Modification

A visual quality objective meaning human activities may dominate the characteristic landscape but must also utilize naturally established form line, color, and texture. It should appear as a natural occurrence when viewed in foreground or middle ground.

Monitoring (Program)

Close evaluation of the implementation of Forest activities for conformance with the standards and guidelines and objectives as stated in the Forest Plan.

Mountain Pine Beetle

A small insect that bores into trees introducing a fungus which can kill the tree if the tree does not successfully repel the attack.

Mortality

The volume of sound wood dying from natural causes during a specified period

Multiple Use

The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

Municipal Watershed

A watershed that serves a public water system as defined in the Safe Drinking Water Act and associated regulations.

NEPA

National Environmental Policy Act of 1969. A law directing Federal agencies to evaluate environmental effects of proposed action.

Net Public Benefits

An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple-use and sustained-yield

NFMA

The National Forest Management Act of 1976

Nonchargeable Volume

All volume not included in the growth and yield projections for the selected management prescriptions used to arrive at the allowable sale quantity.

Noncommercial Forest Land

Unproductive forest land incapable of yielding 20 cubic feet of wood per acre per year because of adverse site conditions and productive forest land withdrawn from commercial timber use through statute or administrative regulation.

Noncommercial Species

Species that have no economic values at this time nor anticipated timber value within the near future.

Nondeclining Flow

See Base Sale Schedule.

Nonforest Land

Lands that never have had or that are incapable of having 10 percent or more of the area occupied by forest trees; or lands previously having such cover and currently developed for nonforest use.

Nonmarket

Products derived from National Forest resources that do not have a well-established market value, for example, wilderness, wildlife.

Nonpriced Outputs

Outputs for which there is no available market transaction evidence and no reasonable basis for estimating a dollar value commensurate with the market values associated with the priced outputs.

Off-Road Vehicle (ORV)

A motorcycle, dune buggy, four-wheel drive, snowmobiles, or other vehicle that is designed to operate off of a road.

Off-Highway Vehicle (OHV)

This term replaces ORV above.

Old Growth

Overmature trees well past their optimum growth period and past age of rotation.

Oligotrophic

Pertaining to a lake having insufficient nutrients to support abundant plant and animal life, and, therefore, having a high oxygen content. These lakes are characteristically deep and geologically young.

Opening

An area without trees.

Open Road Density

A term used when measuring the miles of open road per square mile of land area (see definition of a closed road). The purpose of the measurement is to provide an indication of the potential impact of vehicle traffic on wildlife habitat. The desired open road densities have been established for the deer summer range and some of the management areas. When a planning team determines that these values would be exceeded for a given project, further biological evaluation would be warranted.

The land area used in the calculation of square miles is normally the total area of the implementation unit, excluding the area of major lakes. The road mileage used in the calculation includes all open roads within the unit and one-half the mileage of open roads along the perimeter of the unit. Because seasonal road closures are implemented for wildlife reasons, the mileage associated with them is included with closed roads.

Output

The goods, end products, or services that are purchased, consumed, or used directly by people Goods, services, products, and concerns produced by activities that are measurable and capable of being used to determine the effectiveness of programs and activities in meeting objectives. A broad term for describing any result, product, or service that a process or activity actually produces

Overwood Removal

A type of harvest which is designed to remove part or all of the over-aged trees in the overstory. The objective is to release the acceptably stocked understory

Persons-at-one-Time (PAOT)

In recreation, PAOT means persons at one time It is a measure of recreation capacity in the number of people that can occupy a site or area and achieve a desired recreation experience It can be used as a design standard and an indicator of productive capacity for a site or area.

Partial Overstory Removal (POR)

Removal of a portion of the overstory from a manageable understory, where an intolerable amount of damage would be done to the understory if all the overstory were removed at one time. The intention in a partial overstory removal cut is to remove the remainder of the overstory a short time later.

Partial Retention

A visual quality objective which means human activities may be evident, but must remain subordinate to the characteristic landscape.

PD (Other Resource Damage)

These allotments may or may not have approved AMP's but adverse impacts on resources other than the basic soil and water resources are occurring. These impacts are the result of resource management objectives not being met. An allotment will be classified as PD when 10 percent or more of its area meets this criteria. Damage to vegetation is based on use in excess of that planned.

Planned Ignitions

A fire started deliberately, and controlled to accomplish a resource management objective.

Planning Horizon

The overall time period considered in the planning process that spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions which would influence the planning decisions. (36 CFR 219.3)

Planning Period

One decade. The time interval within the planning horizon that is used to show incremental changes in yields, costs, effects, and benefits. (36 CFR 219.3)

Plant Communities

A homogeneous unit in respect to the number and relationship of plants in the tree, shrub, and ground cover strata.

Precommercial Thinning

The practice of removing some of the trees less than merchantable size from a stand so that the remaining trees will grow faster

Prescribed Burning

Use of fire in forest management for hazard reduction and vegetative manipulation.

Prescribed Fire

A wildland fire burning under specified conditions which will accomplish certain planned objectives. The fire may result from either planned or unplanned ignitions. Plans for use of unplanned ignitions for this purpose must be approved by the Regional Forester.

Present Net Value (PNV)

The difference between the discounted value (benefits) of all outputs to which monetary values or established market prices are assigned and the total discounted costs of managing the planning area (36 CFR 219.3)

Productivity Classes

Refer to productivity of the land itself. It is a measure of fertility and moisture availability. In technical literature, productivity is classified using a "Site Index" or "Site Class."

Programmed Harvest

The amount of timber on the Forest that is scheduled for harvesting The programmed harvest is based on current demand, funding, and multiple-use considerations.

Public Issue

A subject or question of widespread public interest relating to management of National Forest System.

Public Participation

Meetings, conferences, seminars, workshops, tours, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service planning.

Puddling (Soils)

Soil puddling is a physical change in soil properties due to shearing forces that destroy soil structure and reduce porosity. Observe detrimental puddling as vehicle tracks when soil is molded and when depth of rutting has reached 6 inches or more.

Purchaser Credit

Credit earned by the purchaser of a National Forest timber sale by construction of contract-specified roads. Earned purchaser credit may be used by the purchaser as payment for National Forest timber removed.

Real Dollar Value

A monetary value which compensates for the effects of inflation.

Recreation Capacity

The number of people at one time that can occupy a site or area without causing environmental damage or impairing the desired recreation experience to be provided in that site or area.

Recreation Information Management (RIM)

A computer data storage system for the organization and management of information concerning recreation use, occupancy, and management of National Forest lands.

Recreation Opportunity Spectrum (ROS)

This refers to a system used to identify and analyze broad categories of recreation opportunities and settings on Forest lands. It involves a Forest-wide recreation analysis of the physical setting (remoteness, size, and evidence of humans), social setting (user density and character), and managerial setting (managerial regimentation and noticeability) on the Forest. It is designed to provide an indication of the kind of experience the recreationist is likely to find in an area. (See Appendix 2 for a discussion of ROS categories.)

Recreation Visitor Day (RVD)

A measure of recreational use of a site area. One recreation visitor day consists of 12 hours of recreation use of a site or area. Recreation visitor days are used as a recreation production or output capacity measure.

Reforestation

The restocking of an area with trees.

Regeneration

The reforestation of a tree crop by natural or artificial means.

Regeneration Cut

A cut in a particular stand of timber designed to remove the existing volume and start a new crop. To qualify for regeneration cutting, a stand must be (1) at or beyond rotation age, and (2) lack an understory of acceptable stocking worthy of management, or (3) have a disease-infected understory which will not develop into a future crop, or (4) have an understory which it is not currently physically possible to save during felling, skidding, and slash disposal operations.

Regeneration Methods

Silvicultural practices used to remove existing stands of timber and start a new stand

Regulations

Generally refers to the Code of Federal Regulations, Title 36, Chapter II, which cover management of the Forest Service.

Rehabilitation

Actions taken to protect or enhance site productivity, water quality, or other values for a short period of time.

Research Natural Areas (RNA's)

Formally designated tracts of land where natural processes are allowed to continue and where natural features are preserved for education and research.

Resource Production

The production and use of natural resources, such as timber and forage.

Resource Values

The tangible and intangible worth of forest resources.

Restoration

The long-term placement of land back into its natural condition or state of productivity.

Retention

A visual quality objective which means human activities are not evident to the casual forest visitor.

RIM

See Recreation Information Management.

Riparian Areas

Geographically delineated areas, with distinctive resource values and characteristics, that are comprised of the aquatic and riparian ecosystems, flood plains, and wetlands. They include all areas within a horizontal distance of 100 feet from the edge of perennial streams or other water bodies (FSM 2526.11, Amend. 26, 4/80).

Riparian Dependant Resources

Fish, water quality, wildlife and plant populations whose existence is dependant on riparian areas.

Road Maintenance Levels

Five levels of service for Forest roads, based on management objectives, which define the standards for maintenance work activities. Level 1 is a closed road, Level 2 is maintained for high clearance vehicles, and Levels 3, 4 and 5 are maintained for passenger cars with additional emphasis on travel speed and comfort for levels 4 and 5.

ROS

See Recreation Opportunity Spectrum.

Rotation

The number of years required to establish (including the regeneration period) and grow timber crops to a specified condition or maturity for regeneration harvest. Selected management prescriptions in the Forest Plan provide the basis for the rotation age.

RPA

Forest and Rangeland Renewable Resources Planning Act of 1974.

RVD

See Recreation Visitor Day.

Sanitation Salvage

The removal of dead, damaged, or susceptible trees primarily, essentially to prevent the spread of pests or pathogens and promote forest hygiene.

Satisfactory Condition

The forage condition is at least fair, with a stable trend, and not PC (basic resource damage) or PD (other resource damage), i.e.,:

Allotments will be classified as PC when analysis or evaluation indicates that one or more of the following conditions exist and livestock use on the allotment is or has been a major factor contributing to this condition.

a.Maximum summer water temperatures are elevated above State Standards or other approved criteria on SMU class I or II streams and this is largely due to the loss of shade-producing vegetation in the allotment

b.More than 20 percent of the total miles of SMU class I and II streams are in a damaged condition (60 percent for class III and 50 percent for class IV streams) where this is largely due to livestock related loss of stabilizing streambank vegetation or bank failure.

c.Gully development of sufficient size to lower the seasonally saturated zone and change the plant community type is occurring.

d.Soil condition rating on 25 percent or more of Key Areas is rated poor or very poor.

Sawtimber

Trees that will yield logs suitable in size and quality for the production of dimension lumber.

Sensitive Species

Those species which (1) have appeared in the Federal Register as proposals for classification and are under consideration for official listing as endangered or threatened species, (2) are on an official State list, or (3) are recognized by the Regional Forester to need special management in order to prevent the need for their placement on Federal or State lists.

Seral

The relatively transitory communities that develop in a given situation. The final stage of such a transition being the climax.

Sere

The series of stages in the growth of a plant formation or community.

Severely Burned

Soils are considered to be severely burned when the top layer of mineral soil has been significantly changed in color, usually to red, and the next one-half inch blackened from organic matter charring by heat conducted through the top layer.

Shelterwood Cut (SW)

Designated trees are left to provide seed, shelter, and shade for the new crop. The rest of the mature stand is removed. Regeneration of the new stand may be by natural seed fall or by planting. After the new stand is established, a final harvest removed the shelterwood and releases the young trees to develop in the open as an even-aged forest.

Silviculture

The art and science of controlling the establishment, composition, and growth of forests.

Site Index

A measure of the relative productive capacity of an area for growing wood. Measurement of site index is based on height of the dominant trees in a stand at a given age

Skyline Logging

A system of cable logging in which all or part of the weight of the logs is supported during yarding by a suspended cable.

Snag

A nonliving standing tree. The interior of the snag may be sound or rotted.

Socioeconomic

Pertaining to, or signifying the combination or interaction of, social and economic factors.

Soil Resource Inventory (SRI)

An inventory of the soil resource based on landform, vegetative characteristics, soil characteristics, and management potentials.

Special Interest Area

Lands set aside to preserve and interpret unique geological, biological, and cultural areas for education, scientific, and public enjoyment.

STARS

Sale tracking and reporting system.

Stand

A community of trees or other vegetation sufficiently uniform in composition, constitution, age, spatial arrangement, or condition to be distinguishable from adjacent communities and so form a silvicultural or management entity.

SHPO

State Historic Preservation Office

Stocking

The degree to which trees occupy the land, measured by basal area and/or number of trees by size and spacing, compared with a stocking standard, such as the basal area and/or number of trees required for full utilization of the lands' growth potential.

Stocking Level Control

The process of maintaining the desirable number of trees to achieve optimum growth and management. It not only includes thinnings (both precommercial and commercial) but other cultural work such as brush and rodent control as well

Streamflow

The discharge of water from a watershed that occurs in a natural stream channel

Streamside Management Units (SMU)

An area of varying width adjacent to a stream where practices that might affect water quality, fish, and other aquatic resources are modified to meet water quality goals, for each class of stream. The width of this area will vary with the management goals for each class of stream, characteristics of the stream and surrounding terrain, and the type and extent of the planned activity.

Suitability

The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.

Suitable Forest Land

Commercial forest land identified as appropriate for timber production in the forest planning process.

Sustained Yield

The achievement and maintenance in perpetuity of a periodic output of the renewable resources without impairment of the productivity of the land

Thermal Cover

Cover used by animals to lessen the effects of weather; for elk, a stand of coniferous trees 40 feet or more tall with an average crown closure of 60 percent or more.

Thinning

The practice of removing some of the trees in a stand so that the remaining trees will grow faster due to reduced competition for nutrients, water, and sunlight Thinning may be done at two different stages:

1.Commercial thinning - Removing trees that have reached sufficient size to be manufactured into a product.

2.Precommercial thinning - Removing trees that are too small to make a merchantable product.

Threatened Species

Any species listed in the Federal Register which is likely to become an endangered species within the foreseeable future throughout all of a significant portion of its range.

Thrifty

Thrifty refers to the condition of a stand of trees or to the condition of a single tree. Generally a thrifty tree is a healthy tree with dark green needles, a fairly full crown, a pointed crown indicating fairly rapid growth, and otherwise in generally healthy appearance. A thrifty stand would be composed of trees, most of which are individually thrifty.

Timber Classification

Forested land is classified under each of the land management alternatives according to how it related to the management of the timber resource. The following are definitions of timber classifications used for this purpose.

1.Nonforest - Land that has never supported forests and land formerly forested where use for timber production is precluded by development or other uses.

2.Forest - Land at least 10 percent stocked (based on crown cover) by forest trees of any size, or formerly having had such tree cover and not currently developed for nonforest use

3.Suitable - Commercial forest land identified as appropriate for timber production in the forest planning process.

4.Unsuitable - Forest land withdrawn from timber utilization by statute or administrative regulation (for example, wilderness) or identified as not appropriate for timber production in the forest planning process.

Timber Harvest Schedule

The quantity of timber planned for sale and harvest, by time period, from the area of land covered by the Forest Plan. The first period, usually a decade, of the selected harvest schedule provides the allowable sale quantity Future periods are shown to establish that sustained yield will be achieved and maintained

Timber Stand Improvement

Measures such as thinning, pruning, release cutting, prescribed fire, girdling, weeding, or poisoning of unwanted trees aimed at improving growing conditions for the remaining trees.

Tolerance

The ability of a tree to grow satisfactorily in the shade of, and in competition with, other trees.

Total Resource Opportunity Assessment (TROA)

An assessment of the resources in an Integrated Resource Area (IRA).

Understory Vegetation

Grass, small trees, shrubs, and other plants found beneath the overstory (the trees comprising the forest).

Uneven-Aged Management

The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection.

Unplanned Ignition

A fire started at random by either natural or human causes, or a deliberate incendiary fire.

Utility Corridor

A strip of land dedicated primarily to some form of transportation, communications, or power.

Viable Population

A viable population consists of the number of individuals, adequately distributed throughout their range, necessary to perpetuate their existence in natural, genetically stable, self-sustaining populations.

Viewshed

The total landscape seen or potentially seen from all or a logical part of a travel route, use area, or water body.

Visual Quality Objectives (VQO's)

Categories of acceptable landscape alteration measured in degrees of deviation from the natural-appearing landscape. The categories are:

1.Preservation - Ecological change only here.

2 Retention - Human activities are not evident to the casual Forest visitor.

3 Partial Retention - Human activity may be evident, but must remain subordinate to the characteristic landscape.

4.Modification - Human activity may dominate the characteristic landscape, but must, at the same time, follow naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in foreground or middle ground.

5 Maximum Modification - Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background.

6.Enhancement - A short-term management alternative which is done with the express purpose of increasing positive visual variety where little variety now exists.

Visitor Day

See Recreation Visitor Day.

Visual Resource

The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors

Visually Subordinate

Secondary in visual importance and inferior in terms of size, brightness and visibility.

Wetlands

Areas that are inundated by surface or ground water with a frequency sufficient to support a prevalence of vegetation or aquatic life that requires saturated or

seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

WFUD

Wildlife and Fish User Day - One WUFD consists of 12 hours of recreation that is the result of fish or wildlife.

Wild and Scenic Rivers

Those rivers or sections of rivers designated as such by congressional actions under the 1968 Wild and Scenic Rivers Act, as wild, scenic, or recreational by an act of the Legislature of the State or States through which they flow. Wild and scenic rivers may be classified and administered under one or more of the following categories.

1.Wild River - Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

2 Scenic River - Those rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

3 Recreational River - Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Wilderness

An area established by Congress and managed under the direction of the 1964 Wilderness Act Wilderness is defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. Wildernesses are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature with the imprint of human activity substantially unnoticeable, have outstanding opportunities for solitude or a primitive and unconfined type of recreation; are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest.

Wildfire

Any wild-land fire that is not a prescribed fire.

Withdrawal

A legislative or administrative order removing specific land areas from availability for certain uses.

Working Group

Comprises those parts of a forest that have generally the same silvicultural management and rotation.

Xeric

Characterized by or adopted to a dry environment. Some moisture is present but does not occur at optimum levels for plant growth.

Yarding

The moving of logs from the stump where cut to a central collection point or landing.

Yield Tables

Tables that estimate the level of outputs that would result from implementing a particular activity. Usually referred to in conjunction with FORPLAN input or output. Yield tables can be developed for timber volumes, range production, soil and water outputs, and other resources.

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INDEX

A

B

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

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