United States
Department of
Agriculture

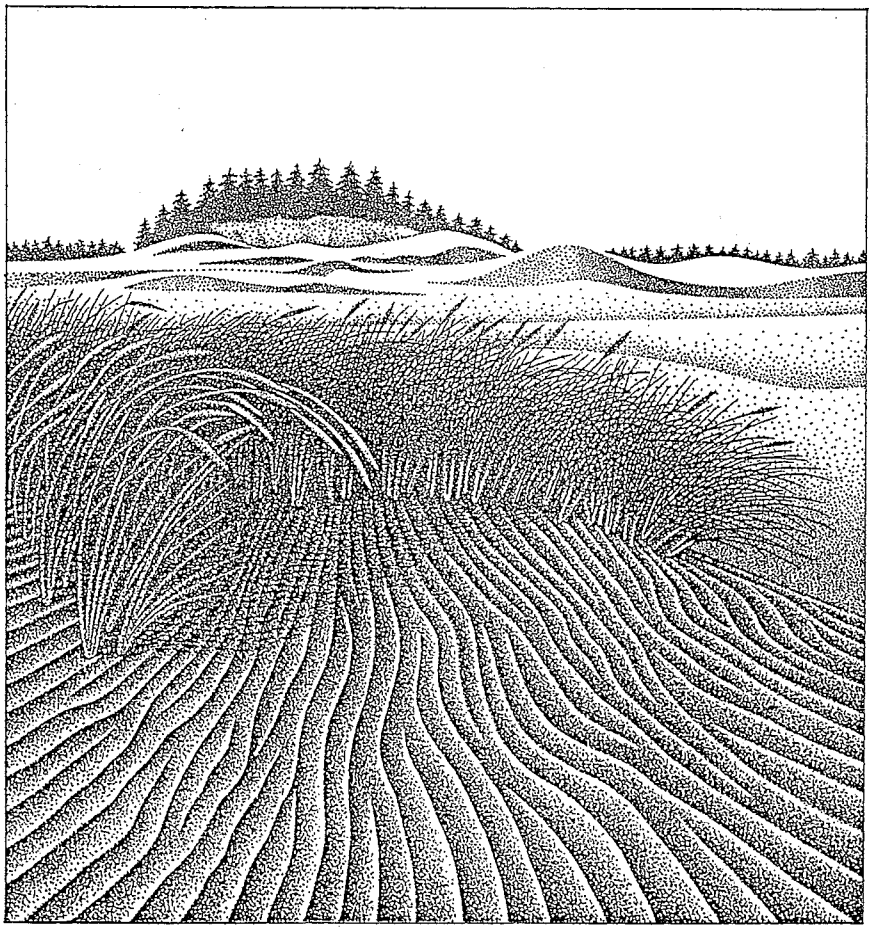
Forest Service

**Pacific
Northwest
Region**

Management Plan

Oregon Dunes National Recreation Area

Siuslaw National Forest



Management Plan
for the
Oregon Dunes National Recreation Area

Siuslaw National Forest
Coos, Douglas and Lane counties
July 1994

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Abstract

This Dunes Management Plan was prepared according to Secretary of Agriculture regulations (36 CFR 219) which are based on the Forest and Rangeland Renewable Resources Planning Act (RPA) as amended by the National Forest Management Act of 1976 (NFMA). This plan was also developed in accordance with regulations (40 CFR 1500) for implementing the National Environmental Policy Act of 1969 (NEPA).

Because this plan is considered a major federal action significantly affecting the quality of the human environment, a detailed statement (environmental impact statement) was prepared as required by NEPA. This Dunes Plan represents the implementation of the Preferred Alternative as identified in the Final Environmental Impact Statement (FEIS) for the Dunes Management Plan.

If any particular provision of this Dunes Plan, or the application thereof to any person or circumstances, is found to be invalid, the remainder of this Plan and the application of that provision to other persons or circumstances shall not be affected.

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Introduction

CHAPTER I

Introduction

The Oregon Dunes is a special place. It constitutes one of the largest expanses of temperate coastal sand dunes in the world. The large oblique dunes found here occur nowhere else in the world. Stark, mist-shrouded views of dunes, forests and ocean in such close proximity to one another are rare and somehow hauntingly beautiful. Many plants and animals, including some that are found in few other places in the world, call the area home, either year-round or seasonally. The area contributes uniquely to biodiversity of the north Pacific Coast eco-region.

Congress recognized the uniqueness of this place when it designated this 31,500-acre (28,900 acres managed by U.S. Forest Service) portion of the Siuslaw National Forest as the Oregon Dunes National Recreation Area (NRA) in March of 1972. In setting aside this unique and beautiful area Congress prescribed that it was to be managed for "...public outdoor recreation use and enjoyment" and for "...the conservation of scenic, scientific, historic and other values contributing to public enjoyment ...". Further, Congress told the USDA-Forest Service, which it entrusted with managing and protecting this rare and beautiful gem, that it was to be available for the appreciation and enjoyment of future as well as the current generation of Americans.

It is a great responsibility to be designated stewards for such a rare, ecologically complex and beautiful public treasure. It is a responsibility that cannot be taken lightly and that must be shared with the owners, the American public. This plan is intended to guide Forest Service management and protection of the Oregon Dunes NRA until such time as changing conditions or results of monitoring indicate a need for its amendment. It was developed with the participation and assistance of interested members of the public. It will provide guidance and direction in the years to come to ensure that, as stewards, we are fulfilling our public trust in a manner that meets the intentions Congress had in mind when it acknowledged legislatively that the Oregon Dunes is indeed a special place.

Purpose

This Oregon Dunes NRA Management Plan (hereafter referred to as the Dunes Plan) guides all resource management activities and establishes standards and guidelines (S&Gs) for the Oregon Dunes NRA. It describes resource management practices, levels of resource production and management, and the availability and suitability of NRA lands for resource management.

The Dunes Plan establishes:

- NRA-wide multiple-use goals and ecosystem management objectives;

- NRA-wide S&Gs to fulfill requirements of the National Forest Management Act of 1976 (NFMA);

- Separate management areas with differing resource emphases within the NRA (Management Area 10 in the Siuslaw Forest Plan);

- Management area direction including management area prescriptions and S&Gs applying to future management activities in specific management areas;

- Monitoring and evaluation requirements.

This Dunes Plan embodies the provisions of NFMA, the implementing regulations, and other guiding documents. It is developed in accordance with Siuslaw Forest Plan direction (S&G #10-01). Management area allocations, prescriptions, S&Gs, and monitoring standards constitute a statement of this Plan's management direction. However, projected outputs, services and rates of implementation are contingent upon the annual budgeting process.

This Plan will guide NRA programs beginning in 1994. It would ordinarily be revised on a 10-year cycle, but at least every 15 years. It may be amended or revised at any time if the Forest Supervisor determines that conditions on the NRA have changed or if monitoring or project-level environmental analysis indicate a need for changed management.

Dunes Plan Relationship to Other Documents

Relationship to the Environmental Impact Statement and the Record of Decision

This Dunes Plan sets forth "direction" for managing land and resources of the Oregon Dunes NRA. It results from analysis and considerations addressed in the accompanying Final Environmental Impact Statement (FEIS) and Record of Decision (ROD). It implements the Preferred Alternative [Alternative F(PA)] from the FEIS. The ROD explains considerations and rationale used by the Forest Supervisor in making his decision to select and implement Alternative F(PA).

The planning process and analysis procedures used to develop this plan are described in the FEIS. The FEIS also describes other alternatives considered in the NRA planning process. Specific activities and projects will be planned and implemented to carry out direction of this Plan. Site-specific environmental analysis will be performed on these activities and projects. These analyses will be tiered to the FEIS and the Siuslaw Forest Plan.

Relationship to the Siuslaw Forest Plan

This Dunes Plan is tiered to and becomes a part of the Siuslaw Forest Plan. It amends current Forest Plan direction for Management Area 10 and is incorporated verbatim into the Forest Plan as revised management direction for the Oregon Dunes NRA. All relevant aspects of the Forest Plan, such as Forest-wide S&Gs and monitoring standards, continue to apply to the NRA. NRA management direction will be revised as part of any Forest Plan review and revision process.

Plan Contents

This Dunes Plan consists of four chapters and three appendices.

Chapter I describes the purpose of this Plan, types of management direction it provides, relationship of this Plan to other documents, and a brief overview of the Oregon Dunes NRA.

Chapter II describes responses to planning issues, concerns and opportunities and outputs resulting from Plan implementation.

Chapter III is the heart of this Plan. It provides a listing of Forest-wide and NRA-wide S&Gs for management actions. It outlines 11 sub-management areas within the Oregon Dunes NRA (Forest Management Area 10). It describes goals, desired future conditions and management-area-specific S&Gs for each management area within the NRA. Specific locations of various management areas within the NRA are shown on the map labeled "Alternative F(PA)-Modified."

Chapter IV contains implementation direction and a monitoring and evaluation strategy. This strategy supplements monitoring already being carried out as part of the Forest Plan monitoring program. As this Plan is implemented, it will be monitored to determine whether outputs in Chapter II and S&Gs in Chapter III are being met and whether they are effective in achieving desired conditions.

Following Chapter IV are appendices which include: A) the NRA Act; B) a project implementation schedule; and C) a compatibility criteria for activities on private lands within the NRA boundary. A glossary, a list of acronyms, and a list of references are also provided at the back of this Plan.

Oregon Dunes NRA Overview

The Oregon Dunes NRA occupies a strip of central Oregon coastline approximately 40 miles long and averaging 1½ miles wide between Coos Bay-North Bend in the south and Florence in the north (see Vicinity Map). It is comprised primarily of sand dunes, but also contains extensive areas of wetland, as well as upland coniferous forest along its eastern boundary. The Oregon Dunes NRA is the most extensive and unique expanse of sand dunes along the Pacific Coast of North America. A variety of unique geologic features occur here including tree islands, huge parabola dunes, and oblique dunes, a formation found nowhere else in the world.

There are 31,500 acres within the NRA boundary. The Forest Service manages 28,900 acres; 27,450 acres of federally-owned lands within the Oregon Dunes NRA and approximately 1,450 acres of national forest lands outside the NRA boundary. Principal features include unique coastal geology and scenery, varied recreational opportunities, numerous freshwater lakes and streams, and a wide variety of unusual and limited wildlife habitats. Primary resources include outdoor recreation opportunities and plant, fish and wildlife habitat. A mild climate and easy access along the length of the area, via U.S. Highway 101, promote year-round visitation for a wide variety of outdoor recreation activities. About 1.5 million people visit the NRA annually. The area sustains several globally significant plant communities, five sensitive plants, and provides critical habitat for snowy plover, a threatened shorebird.

The NRA occupies the western parts of Lane, Douglas, and Coos counties. Principal nearby communities include Florence, Reedsport, Coos Bay, and North Bend. Several smaller communities such as Dunes City, Lakeside, and Hauser are also nearby.

The economy of the surrounding area was historically based on wood products and commercial fishing. However, in recent years these industries have declined while visitor and service industries (generally associated with an increasing tourist and retiree population) are increasingly important contributors to the coastal economy.

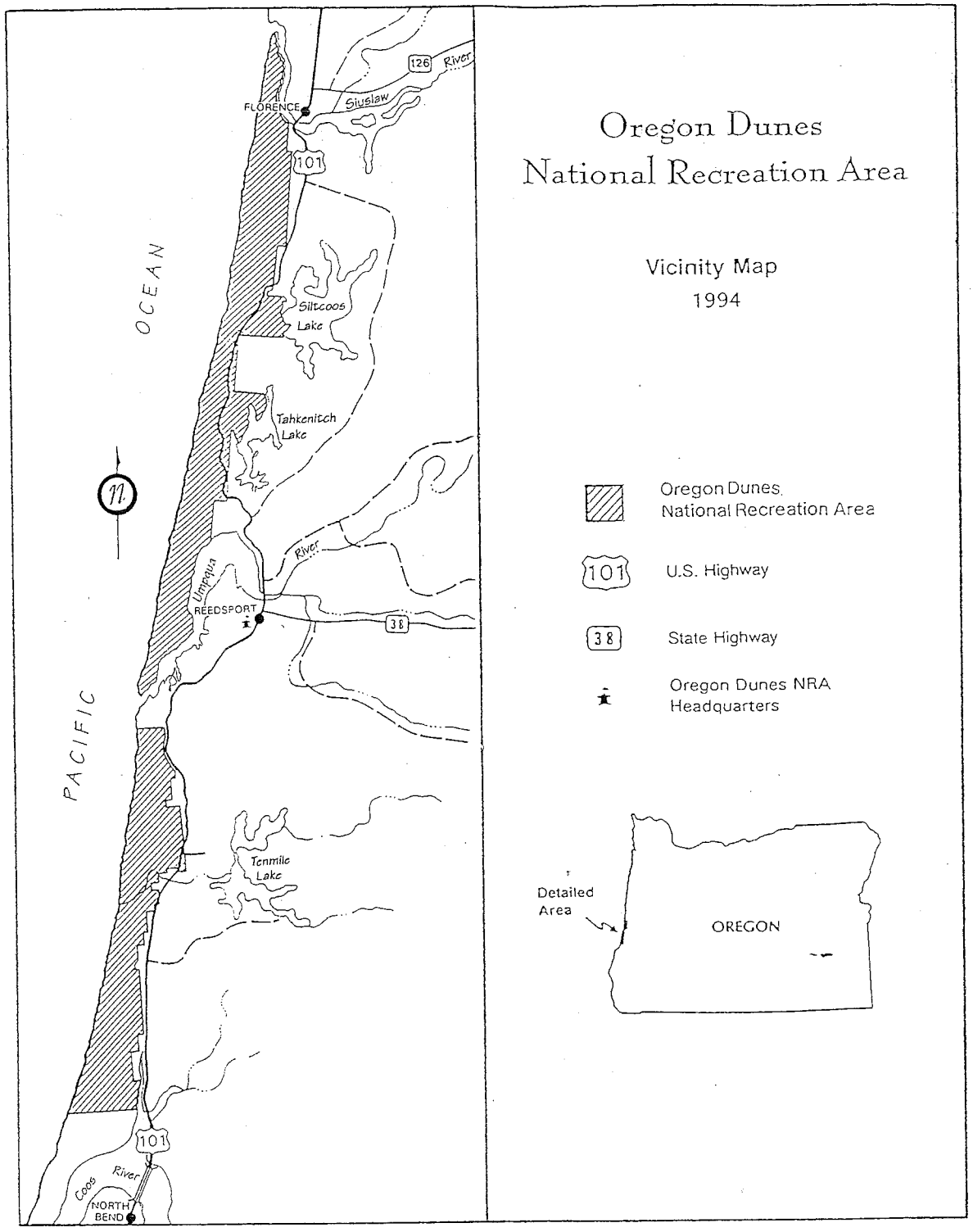


Figure 1. Location of the Oregon Dunes NRA

Chapter II
Response to Issues

CHAPTER II

Response to Issues

This chapter briefly describes how this Plan responds to planning issues and outputs that will be produced (see Figure II-2). An early step in the planning process was identification of issues, concerns and opportunities (ICOs) related to management of the Oregon Dunes NRA. ICOs were identified through citizen participation, including public meetings of varying format, interagency coordination, personal contacts with individuals and groups, and comments on the Draft Environmental Impact Statement. Appendix B, in the Final Environmental Impact Statement (FEIS), describes the public involvement process and how public input was used to identify and verify issues.

Seventeen ICOs were identified, which provided the basis for development of the 8 alternatives presented in the FEIS. Each alternative responds differently to many of the ICOs. Some of the ICOs are responded to in the same way by each alternative. Differing responses of alternatives to ICOs results in a different mix of NRA outputs from each alternative. Complete resolution of all ICOs is not feasible because of inter-relationships among resources. A gain to one resource use (i.e., motorized recreation) may be a loss to another (i.e., wildlife habitat).

This Plan implements the FEIS Preferred Alternative, F(PA). It is the alternative the Forest Supervisor has determined will most benefit the public. Compromises were made between major issues to arrive at a mix of resource uses to satisfy the most interests. In planning terminology, the Preferred Alternative maximizes long-term net public benefit, which is the value of all benefits less associated costs. Net public benefit is derived from both quantitative and qualitative criteria.

Issues

Recreation

What mix of recreation settings and opportunities will be provided at the NRA?

Amounts, types and areas of recreation use at the Oregon Dunes NRA are to a large degree a result of the mix of recreation settings that the Forest Service provides. The mix and amounts of each setting that the land will support and the agency decides to provide will ultimately determine: levels of access and facility development that occur; types of recreation activities and opportunities that visitors can participate in; density of visitors and frequency of encounters that people experience on the area; and level of management presence and visitor control that will be exercised by the Forest Service.

The NRA has historically provided recreation opportunities in 4 of the 6 Recreation Opportunity Spectrum (ROS) classes: rural, roaded natural, semi-primitive motorized, and semi-primitive non-motorized. This Plan maintains that mix of ROS classes and opportunities, but changes the relative proportions (see Figure II-1 below) to achieve the following objectives:

- increase separation between competing recreation uses;
- reduce recreation impacts on other resources;
- meet current recreation demands while positioning the NRA to better meet emerging recreation trends.

Figure II-1. NRA Acres by Recreation Opportunity Spectrum Class.

ROS Class	Acres
Rural	300
Roaded Natural	3,660
Semiprimitive Motorized	12,440
Semiprimitive Nonmotorized	12,500
TOTAL NRA (National Forest Acres)	28,900

Off-Road Vehicle (ORV) Use

How will ORV recreation be managed in relation to resources, nearby residents, and other recreationists?

Broad management direction for the use of vehicles off roads on national forest lands is provided in Title 36 Code of Federal Regulations (CFR), Parts 261 and 295. Public issues and management concerns around ORV use on the NRA related primarily to vehicle impacts to habitats, unique geologic resources, and nearby residents and non-ORV recreationists. To address CFR direction, as well as public issues and management concerns, this Plan initiates several actions, including night-riding curfews, restricted motorized dispersed camping, limitation of ORV use to facilities with direct sand access, more stringent ORV noise emission goals, and noise-control buffers. Other actions, such as designated routes through vegetated areas, are carried over from the previous plan. Education, enforcement and monitoring will be used to ensure that ORV use patterns are changing in accordance with the above-cited actions and that changes in use patterns are producing desired results.

Access and Facility Development

How much access and facility development is appropriate at the NRA?

This issue is related to the recreation settings discussed above. All new roads, trails and facilities proposed by this Plan are presented in the Implementation Schedule in Appendix B.

Approximately 2 additional miles of surfaced road, 12 ¼ miles of new trail, and several additional day-use facilties focused around angling, wildlife viewing and interpretive opportunities are planned throughout the NRA. ORV day-use staging development or expansion and additional overflow camping are planned to help improve the quality of habitats and more effectively separate competing recreation uses.

In addition, there are trail opportunities for hikers, mountain bikers and perhaps equestrians associated with the recently-acquired 2,000 acres along Tahkenitch Lake. Timing of this acquisition precluded detailed planning for these lands in this Plan, but these trail opportunities will be included in subsequent planning. Additional highway vehicle access will also be considered as part of planning for these lands.

Overnight capacity of the NRA will be increased by about 4% over the current level. Day-use facility capacity will increase by approximately 34%. Most development activity will be focused within existing corridors and will not significantly increase the overall percentage of NRA lands that are "developed".

Education and Resource Interpretation

What level of education and resource interpretation should be provided at the NRA?

This Plan provides for a broad-based education and resource interpretation program featuring both guided and non-guided structured-learning opportunities, as well as unstructured opportunities for exploration and self-guided discovery. Several small facilities (included in Appendix B) are planned that will provide additional opportunities for education and resource interpretation. The opportunity for a multi-agency developed and administered environmental learning facility at Butterfield Lake is recognized.

Vegetation Management

How will vegetation and special forest products be managed to maintain or enhance unique scenic, ecological, and recreational qualities associated with dunes ecosystems?

This Plan designates about 5,000 acres of NRA lands as high priority vegetation treatment areas and an additional 6,000 acres as secondary vegetation treatment areas (see Potential Vegetation Management Areas Map at back). It identifies and prioritizes a series of resource objectives to be addressed through vegetation treatment. Site-specific projects will be subsequently developed and analyzed to meet the objectives identified in this Plan. These projects will provide opportunities to experiment with, and monitor effectiveness and cost, of a variety of potential treatment methods.

This Plan establishes criteria for recreational and commercial uses of special forest products. It designates areas of the NRA that are open, restricted or closed to such uses.

Plants, Fish and Wildlife

How will plant, fish and wildlife habitat including that for proposed, endangered, threatened, and sensitive (PETS) species be managed at the NRA?

This Plan designates three management areas (10E, 10F and 10G) within the NRA that primarily emphasize maintenance and enhancement of habitat for plants, fish or wildlife. The three areas total approximately 7,000 acres. They include habitat for threatened snowy plover, globally significant plant communities, warmwater and anadromous fish species; and a variety of special habitats that are of limited extent on the NRA, such as upland forest and meadows, or are important contributors to regional biodiversity, such as wetlands and beach strand.

Research Natural Areas (RNAs)

Which areas at the NRA will be recommended for establishment as RNAs?

Decision on two proposed RNAs located on the NRA, Umpqua Spit and Tenmile Creek, was deferred from the Siuslaw Forest planning effort to the NRA planning effort. This Plan recommends establishment of the Tenmile Creek RNA (Management Area 10K) with boundaries modified to accommodate high semi-primitive non-motorized recreation values, potential conflicts arising from proximity to Eel Creek Campground, and existence of a popular trail in the southern portion of the originally-proposed area. The Regional Forester will make final determination as to whether or not the area is designated an RNA.

The Umpqua Spit area is not recommended for establishment because it has high wetlands management potential and because during the NRA planning process 770 acres of the area passed from federal to private ownership under provisions of the 1872 Mining Law.

Wild and Scenic Rivers

Which streams at the NRA will be recommended to Congress for inclusion into the national Wild and Scenic River system?

Segments of three streams at the NRA (Tenmile and Tahkenitch creeks and the Siltcoos River) are eligible and were considered for addition to the Wild and Scenic River system. This Plan recommends that the portion of Tenmile Creek within the RNA boundary be added to the system as a scenic river. It recommends that Tahkenitch Creek within the NRA boundary be added as a wild river. Congress will determine if these streams are finally added to the Wild and Scenic River system. The outstandingly remarkable values identified for these streams will be protected until Congress decides their final status.

This Plan does not recommend Siltcoos River for addition to the Wild and Scenic system. It will be managed for a combination of recreation and habitat objectives.

Compliance

How will enforcement, education and other techniques be used to ensure compliance with regulations at the NRA?

This Plan prescribes program levels for enforcement and education/interpretation that are intended to encourage compliance with Forest Service regulations. Facility designs and management standards are also used to encourage visitor compliance. Citations will be used to discourage non-compliance. This Plan acknowledges that the agency has finite resources available and that compliance relys heavily on self-policing by NRA visitors and groups.

Monitoring of violations and resource impacts resulting from non-compliance will assess effectiveness of enforcement, education, facility design, and management in promoting desired resource conditions and visitor behaviors. If violation frequencies or levels of impact on resources exceed monitoring thresholds, management of the NRA will be changed to bring them back within acceptable levels.

Biodiversity

How will diversity of plant and animal communities (biodiversity) be maintained at the NRA?

This Plan establishes several management areas at the NRA (10E, 10F and 10G) where maintenance or enhancement of plant, fish, and wildlife habitats is the primary objective. In addition, there are numerous management standards and guidelines included in Chapter III that are intended to protect plant, fish and wildlife resources in other NRA management areas, where habitats are not the primary objective. Taken together, overall intent of management area designations and S&Gs is to ensure continued existence of a broad and varied array of plant, fish and wildlife habitats so that the NRA may remain biologically diverse internally, as well as an important contributor to Oregon coastal-region biodiversity.

Local Communities

How will NRA management affect local communities?

The NRA is an important contributor to the quality of life for residents of local communities in two ways. It contributes directly by providing them nearby, natural-appearing open space with numerous opportunities for outdoor recreation, solitude, quiet, and scenic views. These are increasingly scarce attributes that many people in American society value and benefit from. The NRA contributes indirectly by attracting visitors and economic input into the communities from outside the area. This visitation provides business and economic benefits which in turn may directly or indirectly benefit community residents.

This Plan maintains a broad mix of recreation settings and opportunities, so that the NRA can benefit a broad segment of local residents with a variety of recreation interests, as well as attract visitors with varied interests to the area. It focuses development activities on day-use facilities so that the private sector can provide more lucrative overnight accommodations. Many planned facilities are focused around opportunities to see and learn about plants and wildlife. Strengthening these opportunities will add diversity to the range of experiences available on the NRA and help local communities tap into the rapidly growing eco-tourism market.

Attraction of tourists to the area will benefit local communities. However, there may also be associated negative impacts, such as excessive demand on infrastructure and services, traffic congestion and increased crowding.

Land Ownership Adjustments

What land ownership adjustments will be made at the NRA?

This Plan maintains current land acquisition priorities for the NRA. Highest priority are non-federally owned lands within the Dunes Sector portion of the NRA. Second priority are lands within the Inland Sector, that may be acquired only on a willing-seller basis as long as use of these lands meets NRA compatibility criteria (see Appendix C). Beyond these priorities are lands outside the NRA boundary, but still within the Siuslaw Forest boundary that would contribute to the purposes for which the NRA was established. Lowest priority are lands outside both the NRA and National Forest boundaries that would fit well into NRA management. The NRA falls under the Siuslaw Forest Land Adjustment Plan.

Roadless Areas

How much of the land at the NRA will be managed as roadless areas?

This Plan calls for development of roads into Butterfield and Beale lakes, areas that are currently unroaded. Each road will be approximately one mile in length. As a result, there will be about a 250-acre decrease in roadless area at the NRA. However, approximately 86% of the NRA will still be managed as roadless areas.

Water

How will water be managed at the NRA?

The Act creating the Oregon Dunes NRA directs the Forest Service to conserve values that contribute to public outdoor recreation use and enjoyment of the area. Surface water in the form of lakes and wetlands is among the values to be conserved. The NRA Act also recognizes prior existing rights to some of the surface and underground water sources associated with the NRA. This Plan helps define NRA surface water interests and objectives. It reaffirms reliance on existing special use permits as the mechanism to ensure that the intentions of Congress as represented in the NRA Act are met.

Mineral Entry

Should the mile-wide buffer of national forest lands at the south end of the NRA be recommended for withdrawal from mineral entry?

These lands were intended to provide a buffer between the NRA and industrial lands on the North Spit of the Coos River. As national forest, but not NRA lands, they were not withdrawn from mineral entry. In the 20-plus years that the NRA has existed and managed these lands, resource conditions and use have changed, so that it may now be desirable to seek withdrawal of these lands from mineral entry. This Plan documents habitat and recreation values of these lands, but does not affect on-going agency considerations as to whether or not to seek a mineral withdrawal.

Cultural Resources

How will cultural resources be managed at the NRA?

This Plan does not change Siuslaw Forest Plan direction for management of cultural resources at the Oregon Dunes NRA. The Forest Plan ensures that cultural resources are managed in accordance with federal law.

Native American Religious Freedom

How will Native American religious freedom be ensured at the NRA?

This Plan does not change Siuslaw Forest Plan direction for ensuring the recognition and protection of Native American religious rights on NRA lands.

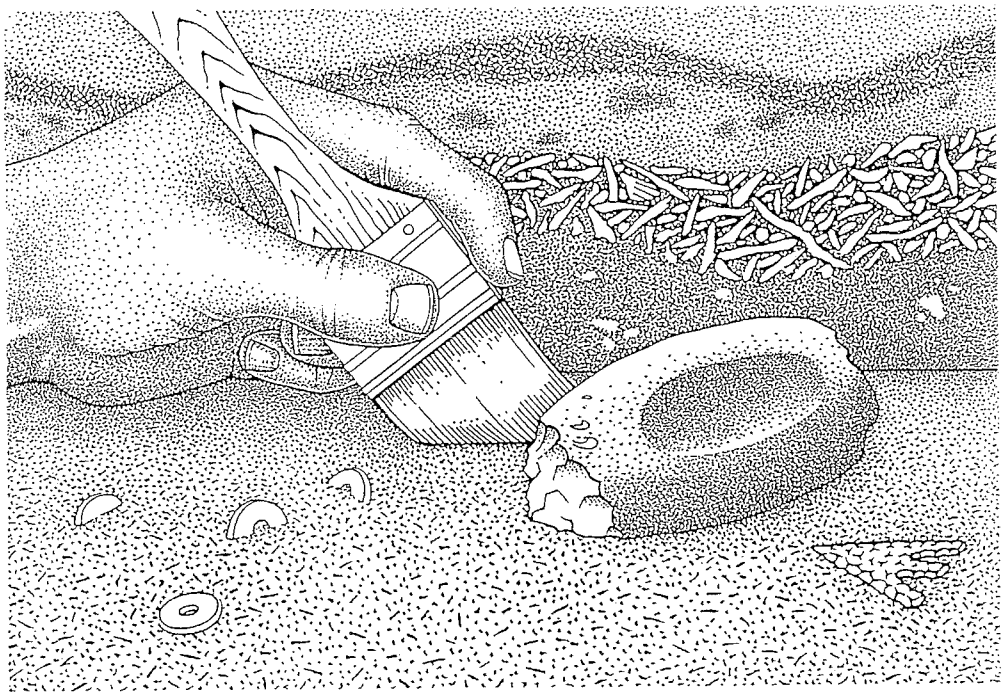


Figure II-2. Quantitative resource outputs

ISSUE/Indicator	Units	Amount
RECREATION MIX/ORV USE		
ROS Classes provided		
Semi-primitive non-motorized	Acres	12,500
Semiprimitive motorized	Acres	12,440
Roaded natural	Acres	3,660
Rural	Acres	300
MANAGEMENT OF ORV USE		
Area open to ORV use	Acres	5,930
ORVs restricted to designated routes	Acres	4,455
Area closed to all ORV use	Acres	19,055
DEVELOPED FACILITIES [1]		
Overnight facilities	Total number	16
Overnight facilities	PAOT [2]	2,720
Day-use facilities	Total number	34
Day-use facilities	PAOT [2]	3,650
Concessions (sand rides, etc.)	Total number	4
Average annual construction costs	Dollars	450,000
ROADS AND TRAILS		
Paved road	Total miles	23
Gravel road	Total miles	4
Trail (accessible/urban)	Total miles	4
Trail (hiking and other) [3]	Total miles	33
Trail (ORV)	Total miles	0
Designated ORV routes	Miles	20
INTERPRETATION/LEARNING OPPORTUNITIES		
Visitor centers/contact stations/sites	Number	10
Capacity of interpretive sites	PAOT [2]	610
REMOVAL OF NON-NATIVE AND OTHER ENCROACHING VEGETATION		
Average annual vegetation removed	Acres	100-500
Average annual cost	Dollars	350,000

[1] This is the total of all facilities even though some are included in other categories, e.g., Interpretation, Fish and Wildlife.
[2] PAOT is a measure of capacity which means "people at one time".
[3] This is the total of all trail miles even though some are included in other categories, e.g., Fish trails

Chapter II
Response to Issues

Figure II-2. Quantitative resource outputs (continued)

ISSUE/Indicator	Units	Amount
FISH		
Fish habitat managed	Acres	290
Fish-related facilities	Number	10
Fish-related facilities	PAOT [2]	470
Trails for fishing access	Miles	2.0
Trails for fishing access	Number	4
SPECIAL HABITATS MANAGED FOR WILDLIFE		
Wetlands	Acres	2,540
Upland forest	Acres	2,530
Meadows	Acres	50
Riparian	Acres	250
Aquatic	Acres	290
HABITATS MANAGED FOR PETS [4]		
Snowy Plover	Acres	1,010
All other species	Acres	240
WILDLIFE RECREATION		
Wildlife-related facilities	Number	7
Wildlife-related facilities	PAOT [2]	205
HABITATS MANAGED FOR GLOBALLY SIGNIFICANT PLANT COMMUNITIES		
Red fescue	Acres	95
Bog blueberry/tufted hairgrass	Acres	10
Shore pine/hairy manzanita-bearberry	Acres	100
Port Orford cedar/evergreen huckleberry	Acres	100
Shore pine/ slough sedge	Acres	40
RESEARCH NATURAL AREAS		
Research natural areas allocated	Number Name	1 Tenmile Creek
WILD AND SCENIC RIVERS		
Streams recommended for designation	Number Classification	2 Tahkenitch-wild Tenmile-scenic
ROADLESS AREAS		
Total amount	Acres	19,045

[4] PETS - Proposed, endangered, threatened, and sensitive species.

Figure II-2. Quantitative resource outputs (continued)

ISSUE/Indicator	Units	Amount
EFFECTS ON LOCAL COMMUNITIES		
Average annual payments to counties [5]	Dollars [7]	63,600
Average annual payments to local counties [6]	Dollars [7]	~~32,400~~
Average annual total income [8]	Dollars [7]	198,030,000 89,607,000
FEDERAL GOVERNMENT CASHFLOW		
Average annual program costs	Dollars [7]	2,100,000
Average annual vegetation removal costs	Dollars [7]	350,000
Average annual facility construction cost	Dollars [7]	330,000
Average annual receipts	Dollars [7]	254,400

[5] Payments shown are from Oregon Dunes NRA revenues only, to seven counties surrounding the Siuslaw National Forest.
[6] Payments shown are from Oregon Dunes NRA revenues only, to three local counties: Coos, Douglas, and Lane.
[7] All dollar estimates are in 1993 dollars.
[8] Total income estimates are limited to visitors for whom the Oregon Dunes NRA was a primary destination.

Chapter III
Resource Summaries and Standards and Guidelines

CHAPTER III

Oregon Dunes NRA Management Direction

This chapter presents management goals, objectives, standards and guidelines (S&Gs), and Management Area (MA) prescriptions. Taken together they constitute direction for land and resource management on the NRA. The chapter also includes desired future conditions for the MAs that comprise the NRA; summaries of NRA resource programs; Forest-wide, Area-wide, and Management-Area-specific S&Gs; and the Dunes Plan map. The map, in the folder at the back of this document, displays the location of the MAs.

Dunes Management Goals

The NRA will be managed to achieve the following long-term goals. These goals describe a desired condition to be achieved some time in the future. They reflect the primary ICOs discussed in Chapter II, as well as applicable laws and regulations. While these goals are expressed in general terms, management objectives and additional direction in subsequent sections of this chapter are intended to achieve these goals.

Recreation Mix - Provide a broad range of high-quality recreation settings and opportunities that are consistent with and sustainable under an ecosystem management approach.

ORV Management - Provide high-quality ORV recreation experiences while managing use to minimize impacts to resources, other recreationists and nearby residents in accordance with direction in 36 CFR, 261 and 295.

Access and Facility Development - Provide facilities that permit access to a range of NRA settings, opportunities and experiences regardless of visitors' physical abilities. Maintain large portions of the NRA in natural-appearing, undeveloped condition.

Education and Resource Interpretation - Use a broad range of media to provide numerous and varied opportunities for visitors to learn about NRA resources and management. Encourage exploration and self-discovery in undeveloped portions of the NRA.

Vegetation Management - Control native and non-native vegetation to achieve varied resource objectives and to restore dunes geomorphological processes in localized areas.

Plants, Fish and Wildlife Habitats - Maintain or enhance diverse habitats that will support viable populations of all native and desirable introduced species. Provide habitat needed to aid recovery of threatened or endangered species in accordance with approved plans.

Research Opportunities - Provide units of land where ecosystems are preserved for study of natural systems and processes, and gene pools are preserved.

Wild and Scenic Rivers - Protect the outstanding values of adjacent lands and resources to maintain eligibility of potential wild, scenic and recreational rivers on the NRA.

Compliance - Use education, enforcement, facility design and monitoring to encourage full compliance with agency regulations, especially 36 CFR, 261 and 295.

Biodiversity - Provide a broad range of ecosystems and seral stages over the long term. Protect communities and ecosystems that are unique, of limited extent at the NRA, or that are important contributors to regional biodiversity.

Local Communities - Produce resource outputs to help support economies of local communities and counties. Be understanding of, and sensitive, to the role that NRA resource management plays in economies and lifestyles of local communities. Support local economic development strategies that focus on increased recreation and tourism.

Other Lands - Coordinate with adjacent landowners, being responsive to their goals, and acquire or exchange land when it is in the public interest.

Roadless Areas - Preserve large portions of the NRA in roadless condition.

Water - Protect quality and quantity of surface water at the NRA while recognizing prior existing rights to surface and underground waters. Manage municipal watersheds to provide a water supply which can be treated to be safe and satisfactory.

Management of Recreation

Virtually all of the 28,900 acres of national forest land managed by the Oregon Dunes NRA are available for recreational use. Recreation is emphasized in MAs 10(A), 10(B), 10(C) and 10(D). In other management areas, recreation is not emphasized, but is permitted in a manner that is consistent with management objectives for the area. The amount and type of recreation that may occur on any given area is dependent on land capabilities and management emphasis for that specific area. Objectives for recreation management at the NRA are to:

- Encourage and facilitate public enjoyment and understanding of the coastal sand dune environment;
- Provide a variety of recreational opportunities that can enhance quality of life for visitors and area residents; and
- Assist in building a diversified, strong and stable economy adjacent to the NRA.

Management direction to meet these objectives will focus on two primary elements: management of NRA visitors and management of NRA recreation settings and opportunities.

Visitors

Management of NRA visitors will involve both numbers and behavior of visitors. It is intended to achieve three objectives:

- Protect physical and biological resources that provide the foundation for recreational use and enjoyment at the NRA.
- Maintain a variety of high-quality recreation settings and experiences.
- Be a "good neighbor" to residents and communities adjacent to the NRA by minimizing adverse impacts resulting from NRA visitors.

Recreation settings will be the primary tool for regulating visitor numbers on the NRA. Each setting has a "desired" average visitor density and frequency and duration of encounters. If settings are permitted to deteriorate in terms of visitor densities, frequency and duration of encounters, quality of recreation experiences will decline. Recreation settings at the NRA will be managed to maintain acceptable levels of use and thereby prevent deterioration in quality of recreation experiences over time.

Types and amounts of various recreation settings that will be provided on the NRA are discussed in the Management of Recreation Settings section below. The social component of settings (average visitor density, frequency and duration of encounters) provides guidance to managers regarding maximum use levels in a given area. The combination of settings, along with their associated visitor density, frequency and duration of encounters helps define the overall upper use level for the NRA.

Primary direction for management of NRA visitors is contained in 36 CFR, 261 and 295. Education, enforcement, and facility design will be used to encourage compliance with regulations (36 CFR, 261 and 295) and promote desired visitor behavior. The Forest Service will expend all available resources to encourage acceptable and discourage unacceptable behavior, but such resources are finite and NRA visitors also bear responsibility for self-policing and ensuring compliance. Monitoring (see Plan Chapter IV) determine if users are complying with regulations, if compliance is producing desired results and whether unacceptable impacts are resulting from non-compliance. Management will be changed when monitoring indicates visitor behavior is creating unacceptable impacts on NRA resources, other NRA visitors, or nearby residents and communities.

Recreation Settings

Four recreation settings (Rural, Roaded Natural, Semi-Primitive Motorized, and Semi-Primitive Non-Motorized) will be provided at the NRA. Full descriptions of intended recreation experiences, attributes and management guidelines for these settings are found in the 1986 Recreation Opportunity Spectrum (ROS) red book.

Rural - The Forest Service will manage approximately 300 acres primarily in large developed facilities as Rural ROS class. These facilities include campgrounds, overlooks, parking lots, and staging areas along Highway 101 or one of the four paved roads into the NRA. The setting is characterized by a substantially modified natural environment. Resources are modified to enhance specific recreation activities. Sights and sounds of humans are readily evident and interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Facilities for intensified motorized use and parking are available. Visitor capacity of rural settings is high and is generally the sum of the capacities of all facilities. Average visitor densities in NRA Rural settings would be between 15 and 30 people per acre.

Roaded Natural - Approximately 3,660 acres primarily along Highway 101 and the four paved NRA access roads will be managed as Roaded Natural setting. This setting is characterized by predominantly natural-appearing environments. Facilities are designed and constructed to accommodate conventional motorized use. Moderate sights and sounds of humans exist and interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modification is evident, but in harmony with the natural environment. Roaded Natural setting may support ORV use in those portions of the NRA where it lies between access roads or staging facilities and Semi-Primitive Motorized settings. Visitor capacity of Roaded Natural settings is intermediate between Rural and Semi-Primitive settings. At the NRA, average visitors per acre in roaded natural settings is between 2.5 and 5.

Semi-Primitive Motorized - 12,440 acres will be managed as Semi-Primitive Motorized setting in three large tracts: the South Jetty to Siltcoos area; the NRA boundary at Umpqua Beach to the Coos-Douglas county line; and the Tenmile Creek to Horsfall Road area. Vegetated areas within these large blocks will be managed to permit ORV riding only on a limited number of designated routes to minimize ORV impacts to vegetation and wildlife as required in 36 CFR, 295. This setting is characterized by a predominantly natural or natural-appearing environment of moderate to large size (generally greater than 2,500 acres). Concentration of users is low, but there is often evidence of other users. The area is managed with minimal and subtle on-site controls and restrictions. Motorized use off roads is permitted. Visitor capacity of Semi-Primitive Motorized settings is low to moderate. Initial estimates of appropriate average visitor density in this setting at the NRA is between 1 and 2 people per acre (computed only on open sand acres where most use occurs).

Semi-Primitive Non-Motorized - There are approximately 12,500 acres at the NRA that will be managed as Semi-Primitive Non-Motorized ROS class. These acres occur in the following large blocks: south of Horsfall Road to the Siuslaw National Forest boundary; Tenmile Creek north to the Coos-Douglas county line; Umpqua River north to Siltcoos River; and South Jetty Road north to Siuslaw River. This setting is characterized by a predominantly natural or natural-appearing environment of moderate to large size (generally larger than 2,500 acres). Interaction between users is low, but there is often evidence of other users. The area is managed with minimal and subtle on-site controls and restrictions. Motorized use is not permitted. Visitor capacity of this setting is low. At the NRA, average visitor densities in this setting would be between ¼ and 1 person per acre.

Developed Facilities

A variety of overnight and day-use facilities are provided throughout the NRA (mostly in Rural and Roaded Natural settings) to support a broad range of motorized and non-motorized outdoor recreation opportunities. Many of these facilities already exist. Those that will be added as part of this Plan are included in Appendix B. NRA facilities fall into one of three management classifications:

1) Overnight camping facilities

2) Day-use only facilities (closed to use between specific hours)

3) 24-hour facilities (available for 24-hour use, but not camping)

Overnight camping facilities and day-use only facilities are listed below. All other NRA facilities are available for 24-hour use, but not overnight camping.

Overnight Camping

Driftwood II Campground
Driftwood Overflow[3]
Waxmyrtle Campground
Lagoon Campground
Tyee Campground
Carter Lake Campground
Tahkenitch Campground
Tahkenitch Landing CG
Elbow Lake Camp[3]
Threemile Camp[3]
Beale Lake Camp[3]
Spinreel Campground
Eel Creek Campground
Butterfield Group Camp[3]
Hauser Overflow
Horsfall Campground
Bluebill Campground
Wild Mare Campground
Horsfall Beach Campground

Day-Use Only [1]

Driftwood Day-use Staging[3]
South Jetty Day-use Staging
Goosepasture Day-use Staging
Siltcoos Beach Parking Lot [2]
Lodgepole Day-use
Umpqua Beach Parking Lot #3
Hauser Day-use Staging[3]
Horsfall Day-use Staging
Bull Run Day-use Staging[3]
Sandtrack Hill Day-use
Butterfield Day-use[3]
Spinreel Day-use
Hall/Schuttpelz Lake Day-use[3]

[1] Open 6 a.m. to 10 p.m., except for Spinreel, Hauser, Horsfall and Bull Run Day-use which are open from 6 a.m. to midnight.

[2] Siltcoos Parking Lot may convert to a 24-hour facility when additional ORV staging is developed and the lot closed to staging.

[3] Facilities planned for development.

Development of new NRA facilities may provide opportunities for partnerships with user-group organizations; other federal, state or county agencies; and private sector interests. These opportunities should be sought out and used whenever appropriate. The High Dunes Overlook facility in particular may provide an excellent opportunity for joint public-private sector development. The Butterfield Lake learning center, group campground and day-use area also provides a multi-party development and administration opportunity.

Off Road Vehicle Management

ORV recreation is a unique class of recreation that is popular yet controversial at the NRA. It is managed in Semi-Primitive Motorized and some Roaded Natural settings. Many of the issues considered in development of this Plan relate to ORV use. Regulations contained in 36 CFR, 261.13 and 295 provide direction specific to management of ORVs on national forest lands. This Plan implements the following actions to ensure compliance with this CFR direction and to address planning issues relating to ORV use on the NRA:

Resource Impacts

- ORVs are restricted to a limited number of designated routes in wetlands and other vegetated areas. Routes are provided to minimize ORV impacts to vegetation, wetlands and wildlife while allowing access between open-sand riding areas.

- Motorized dispersed camping in Semi-Primitive Motorized areas is restricted to designated sites available on a permit basis. Some additional facility contruction (at Bull Run, Horsfall Staging, Hauser, Driftwood, and Goosepasture Staging) is planned to replace some of the capacity lost due to this restriction.

- Overflow camping in the Siltcoos Overflow, a wetland area, is prohibited. Some additional facility contruction is planned to replace some of the capacity lost due to this restriction.

Noise

- Stricter ORV noise emission goals of 95 decibels in 1997 and 90 decibels in 1999 are established. Use 36 CFR, 261 Subpart B orders and/or seek an Oregon Administrative Rule to enforce these standards.

- A noise-control buffer featuring limited ORV access is established along the Cleawox-Woahink lake section of the NRA boundary (MA 10L). This buffer may be narrowed or eliminated if monitoring indicates noise emission goals are being met (95% of vehicles operating at 95 decibels by 1997). It may be expanded or re-established if monitoring indicates noise goals are not being met or if noise concerns persist.

- Quiet hours of 10 p.m. to 6 a.m. are established in all NRA campgrounds, except Horsfall and Spinreel where quiet hours are from midnight to 6 a.m.

- Night-riding curfews of 10 p.m. to 6 a.m. in the South Jetty to Siltcoos area and midnight to 6 a.m. in the Tenmile to Horsfall area are established.

- Several ORV facilities previously available for 24-hour use are now day-use only (Horsfall, South Jetty, and Goosepasture staging). Bull Run, Hauser and additional Driftwood staging will also be day-use facilities upon completion.

Public Safety

- Non-street-legal ORV operation is prohibited on NRA roadways intended for highway vehicle use.
- Non-street-legal ORV use is prohibited in developed facilities without direct sand access (Waxmyrtle, Lagoon, and Bluebill campgrounds). Some additional facility construction is planned to replace some of the capacity lost due to this restriction.

Conflicting Use Separation

- To reduce use conflicts, ORV use is prohibited in some previously open facilities (Siltcoos and South Jetty first beach parking lots). Some additional facility construction is planned to replace some of the capacity lost due to this restriction.
- Close Waxmyrtle Road.
- Seek changes in vehicle access along NRA beaches from the State of Oregon. Seek vehicle closure on beach south of Horsfall Road to Forest boundary and on beach south of Siltcoos River to one mile north of Threemile Road. Seek limitation to street-legal Class-II vehicles and ORVs only for handicapped access on North Spit Umpqua beach and on seasonally open beach north of South Jetty Road to Siuslaw River (see Plan Map).

Management of Scenery

Scenery is managed by establishing visual quality standards for all NRA lands. Projects and management activities are then planned to meet these standards, called Visual Quality Objectives (VQOs). VQOs describe the desired condition of the landscape and how much landscape modification is acceptable. A description of each VQO follows.

Visual Quality Objectives

Preservation - The landscape appears natural from any place within the area. Ecological changes are the only changes permitted. There are few management activities except for low-volume recreation facilities like trails. Facilities such as signs, buildings and viewing platforms are absent.

Retention - To the average forest visitor, activities are not evident from the viewing location; however, a variety of roads, viewing platforms, and parking areas may be present. Upon completion of the activity, the viewed area will only appear slightly altered. Vegetation and landforms are used to screen facilities and unwanted views. A variety of vegetation manipulation techniques are used to maintain and increase visual variety.

Partial-Retention - From the viewing location, management activities are more apparent to the average forest visitor. These activities are visually subordinate to the natural landscape, except in the first year or so. Lines, colors, forms and textures of the activity are borrowed from the surrounding landscape.

Modification - Management activities are not only seen but dominate the viewed landscape. Activities include providing facilities such as buildings, signs, roads, and parking lots.

Viewsheds

Since all NRA lands are seen, those not in viewsheds noted below will be managed with the VQO that corresponds with their assigned ROS classification. Lands that have been assigned as Roaded Natural, Semi-Primitive Motorized or Semi-Primitive Non-Motorized that are not in a viewshed, will be managed as retention.

Primary viewsheds at the NRA are those seen from overlooks, roads and trails. VQOs for these viewsheds are as follow:

Retention	All trails Oregon Dunes Overlook Highway 101 Umpqua Beach Road Siltcoos Road Threemile Road
Partial Retention	High Dunes Overlook South Jetty Road Horsfall Road

Scenery

Scenery is managed by controlling how and where it is altered from the natural appearance, and by introducing or maintaining variety in the viewed area. Individual projects will be analyzed with regard to their compatibility with VQOs. Use measures such as manipulation in landform, vegetative screening, redesign and relocation to ensure proposed projects harmonize with the landscape.

There are areas where vegetation is reducing visual variety. Examples are where beachgrass is moving in or where vegetation is allowed to grow and block views. Manage vegetation to maintain or enhance NRA visual variety and scenic quality. See the Potential Vegetation Management Areas Map accompanying this Plan for highest priority visual quality treatment areas.

Management of Habitats

Habitats are managed for plants, fish and wildlife. Management activities will include: protective measures, restoration or enhancement projects, coordination with other agencies, and development of plant-, fish- and wildlife-based recreation and learning opportunities. Management Areas emphasizing habitats include 10(E), 10(F), 10(G) and 10(H).

Plants

Management of plant habitats will be focused on globally significant communities included in Management Area 10(F), plants that are listed as sensitive, and native plant communities associated with the active-dune ecosystem. Management in globally significant communities will focus primarily on maintenance and protection and development of plant-based learning opportunities. Globally significant communities currently within MA 10(F) include:

- Red fescue community
- Port Orford cedar/evergreen huckleberry community
- Seashore bluegrass community
- Shore pine/hairy manzanita-bearberry community
- Bog blueberry/tufted hairgrass community
- Shore pine/slough sedge community

Additional globally significant communities may be added to MA 10(F) as they are discovered.

Management for sensitive plant species will focus primarily on habitat protection and coordination with others. Sensitive plants currently known to exist on the NRA include:

- Salt-marsh bird's beak - *Cordylanthus maritimus palustris*
- Water pennywort - *Hydrocotyle verticillata*
- Bog clubmoss - *Lycopodium inundatum*
- Adder's tongue - *Ophioglossum vulgatum*

Additional plants may be added to the sensitive species list as they are discovered. Pink sandverbena (*Abronia umbellata brevifolia*) historically occurred on the NRA and may still exist in remote parts of the area, or could be reintroduced in suitable habitat.

Management for native communities will focus primarily on projects to restore or enhance active-dune habitat, and on development of plant-based learning opportunities. Establishment of foredune seashore bluegrass and American dunegrass communities and herb-dominated hummock and dry deflation plains are some of many objectives associated with localized restoration of the active-dune ecosystem.

Special Forest Products

Special forest products include items such as live plants for transplanting, mushrooms, boughs and greenery, mosses and lichens and other such products. Management of these products will focus on maintenance of healthy functioning ecosystems as the first priority; providing opportunities for recreational gathering as the second priority; and permitting commercial uses as the third priority. Some portions of the NRA, such as research or habitat areas, are closed to gathering some or all special forest products because such use is incompatible with the management focus for these areas (see S&Gs).

Fish

Habitat management for fish will be focused on warmwater and anadromous habitat enhancement projects, watershed restoration, and increasing fish-based recreation and learning opportunities. Protective measures are included in standards and guidelines at the back of this chapter and deal primarily with riparian areas. Primary coordination will occur with Oregon Department of Fish and Wildlife (ODFW).

Projects to enhance fish habitat and increase recreational angling opportunities will be focused on the following NRA lakes:

Snag Lake	Siltcoos Lagoon
Beale Lake	Threemile Lake
Carter Lake	Elbow Lake
Osprey Lake	Erhart/Loon lakes

Habitat enhancement activities will vary depending on location, and will include actions such as adding structures for fish cover and rearing, planting shoreline vegetation, weed control, and manipulating phytoplankton populations. Projects to increase fish-based recreation and learning opportunities include access trails, angler camps, fishing docks, signs, and boat ramps. A listing of planned projects is included in the Activity/Implementation Schedule in Appendix B.

Wildlife

Management of wildlife habitat will be focused on threatened and endangered (T&E) species habitat (especially snowy plover in MA 10E), on habitats that add diversity and are of limited extent on the NRA (MAs 10F and 10G), and on wildlife-based learning opportunities (MA 10H). Coordination will be primarily with ODFW and with the U.S. Fish and Wildlife Service (USFWS) in the case of T&E species.

Habitat management for snowy plover (and other T&E species) will primarily involve protective measures and habitat creation and enhancement activities. Protective measures will focus on reducing human disturbance and predation in nesting areas, and include protective structures around nests, informational signing, access restrictions and possibly area closures. Habitat enhancement activites will focus on creation of additional nesting habitat in MA 10(E). Specific actions will depend on the situation. NRA snowy plover management will comply with other agency plans for the species and be coordinated with both ODFW and USFWS. Habitat for other T&E species, such as bald eagle and peregrine falcon, will be protected.

Management of habitats that add diversity or are of limited extent on the NRA will focus on maintenance/protection, enhancement, and providing wildlife-based recreation and learning opportunities. Habitats in this group include wetlands, upland forest, meadows, riparian and high beach. Managed wetlands comprise MA 10(G) and upland forest habitats are part of MA 10(F). Meadow habitat is part of MA 10(F) and is found on the NRA at Butterfield Lake and Lodgepole day-use area. Riparian habitat occurs along margins of streams and lakes. High beach habitat occurs above the high-tide line along the entire length of the NRA. Activities will vary depending on specific project objectives and location. Types of activities to be undertaken in these habitats are described in Figure III-1.

Figure III-1. Activities in Habitats

Habitat Type	Management Actions
Meadow	- Maintain early seral stages by burning, mowing or grazing - Introduce native meadow plants. - Leave or create windrows in open meadow habitat to create hiding cover. - Maintain or create snags and/or perch trees on meadow edges.
Forest	- Thin or create small clearings in plantations and second growth stands to increase horizontal and vertical diversity. - Maintain or create snags and dead and down wood.
Riparian	- Plant native species to increase riparian cover.

Habitat Type	Management Actions
Beach	- Remove and/or control European beachgrass. - Introduce native beach plants in appropriate areas. - Place dredge material on upland sites to increase open beach habitat for snowy plovers. - Remove trash and artificial debris, particularly plastics and toxins on a regular basis.
Wetlands	- Maintain a range of seral stages by burning, mowing, grazing or mechanically treating. - Maintain open water longer into the growing season to: a) reduce shrub encroachment into early seral stage wetlands, and b) create suitable breeding habitat for species which require open water in mid to late summer. - Maintain mudflat habitat for foraging shorebirds.

Facilities planned to increase wildlife-based recreation and learning opportunities are included in Appendix B.

Management of Vegetation

11,317 acres have been identified for potential vegetation management to achieve a variety of resource objectives. These areas have been further refined into primary (5,109 ac.) and secondary (6,208 ac.) treatment areas based upon importance of the resource and reasonable expectations of funding and accomplishment during the life of this Plan. Primary and secondary treatment areas are delineated on the Potential Vegetation Management Area Map accompanying this Plan. Potential treatment areas will be further refined through site-specific planning and analysis, which will follow the Region 6 Vegetation Management EIS and Mediated Agreement to evaluate options and determine strategies and monitoring needs. The program will include removing both native (shore pine, huckleberry, salal, waxmyrtle, willow) and non-native vegetation (Scot's broom, gorse, European beachgrass and various aquatic plants).

The vegetation management program will have a broad overriding objective of restoring dunes geomorphological processes in localized areas. Within this broad objective a series of narrower objectives have been identified. These include:

- restoration and maintenance of snowy plover habitat.
- restoration and maintenance of globally significant plant communities.

- reduction of threat of wildfire to public safety and property.
- maintenance and enhancement of scenic qualities.
- promotion and restoration of native species and habitat diversity.
- maintenance and enhancement of ORV recreation opportunities.
- maintenance and enhancement of aquifer water quality/quantity.

Intensity of treatment is expected to vary greatly depending on areas and resource objectives. Treatment will be less intense for projects such as small pockets of invading non-native vegetation in globally significant plant communities, pruning ladder fuels around campgrounds to reduce fire hazard, or removing small patches of European beachgrass to maintain snowy plover habitat. Treatment will be more intense for projects such as plover habitat restoration in European beachgrass dominated foredune areas, thinning or removal of Scot's broom/shore pine plantations for fire hazard reduction, visual resources or ORV recreational opportunities, and prescribed burning to improve wetlands habitat or reduce fire hazard.

Treatment Methods

Current knowledge of methods to use in coastal dune vegetation types, particularly in the case of European beachgrass, is limited. Different methods and combinations of methods will be tested to determine the most practical way to accomplish resource objectives under various site conditions. Treatment methods which will be considered include:

Manual treatment - use of hands, hand tools or hand operated power tools to pull, cut, clear, thin, prune or remove competing or unwanted vegetation or noxious weeds. Tools employed with this method may include axes, brush hooks, brush pullers, shovels, sifting screens, chainsaws and brush cutters. Manual placement of plastic or weed barrier cloth to prevent seed germination or re-growth from roots or rhizomes is also included in this category.

Mechanical removal/treatment - use of heavy equipment or farm type equipment to cut, clear, remove or control competing or unwanted vegetation or noxious weeds. Equipment utilized with this method may include crawler or all wheel drive tractors equipped with a blade and/or brushrake, mower, rippers, disks, plows, backhoes or other implements. An alternative suggestion which may be tested in an appropriate area is use of ORV traffic to control European beachgrass.

Prescribed fire - use of fire under specific conditions to control competing or unwanted vegetation or noxious weeds, improve wildlife forage or habitat, and reduce fuel accumulation and fire hazard. Techniques may include broadcast burning, pile burning and underburning.

Chemical - application of commercially available herbicides to control competing or unwanted vegetation or noxious weeds. Only herbicides approved for use in vegetation management projects in the National Forests of the Pacific Northwest Region and registered with the Environmental Protection Agency will be considered for use. Application may be mechanical (vehicle mounted or towed wand or boom sprayers), with backpack equipment (usually a pressurized container with agitation device and wand applicator), or by hand application (injection, cut and swab or granular soil application). Treatment of European beachgrass with rock salt or sea water has been suggested due to its intolerance of salt concentrations in soil exceeding 1%. Salting trials thus far have not proven effective in controlling beachgrass; however, if effective methods are developed, salting may be considered on the NRA.

Biological - use of natural pathogens to control non-native vegetation and noxious weeds. Previously introduced biological control agents for Scot's broom and gorse (seed weevils) are currently present on the NRA and showing limited success in preventing spread of these species. Natural pathogens must be screened and tested prior to release to ensure that other plant species are not susceptible. Only biological control agents which have been approved for importation and release by the USDA Animal and Plant Health Inspection Service Technical Advisory Group will be considered for release. While use of biological control agents appears quite promising for both gorse and Scot's broom, isolation of species specific pathogens for European beachgrass does not appear likely in the near future.

Dredge material deposition - deposition of dredge material to control European beachgrass and create snowy plover nesting habitat. Depth and/or salinity of deposited material appear to be most critical for beachgrass control. Consideration of this method is limited to relatively small sites adjacent to navigation channels or harbors.

Development of effective vegetation management methods on the NRA will also involve working cooperatively with researchers and interest groups to: 1) study ways of effectively treating beachgrass and potentially restoring inland sand movement; 2) making NRA lands available for research projects on vegetation removal; 3) holding symposia or conferences to collect information; 4) conducting controlled studies of vegetation removal; and 5) collecting existing information on beachgrass control methods.

Treatment Objectives and Areas

Many potential treatment areas contain overlapping vegetation management objectives, depending on the resource considered. It is not intended that site-specific project planning and implementation stringently follow each resource objective by priority, but rather to utilize resource objectives and priorities to guide site selection and project design. Areas of multiple resource objectives should provide greater opportunity to combine funding, build partnerships and increase accomplishment. It is also not expected that all areas identified as primary potential treatment areas will be treated during the life of this Plan. Site specific analysis will take into account other resource values such as wetlands, T&E species, recreational uses and cultural resources and thus further refine the large areas identified for potential treatment. The acres actually treated are expected to differ substantially from the potential treament acres.

Snowy Plover - Focus will be primarily on European beachgrass control and establishment and maintenance of nesting habitat within snowy plover management areas. Most work will take place between the mean high tide mark and the eastern edge of the foredune; however, some additional vegetation may need to be removed to prevent encroachment into treatment areas or, project design may incorporate additional objectives such as visual quality or native species diversity.

Estuaries near the mouths of the Siltcoos River, Tenmile Creek and Tahkenitch Creek currently provide suitable nesting habitat and will be highest priority for maintenance of habitat. Projects focused on restoration and creation of snowy plover habitat will build upon existing nesting habitat in these same areas. Primary areas in which treatment could be reasonably expected during the life of this Plan, in order of priority, are: 1) from the Siltcoos estuary, south two miles; 2) from the Tenmile estuary, south one mile and north three miles; and 3) from the Tahkenitch estuary, one mile south and one mile north. Total area of all primary treatment areas is 714 acres.

The small snowy plover management area located on the eastern side of the North Spit of the Umpqua River does not currently provide nesting habitat for snowy plovers. If dredge material planned to be deposited there are used for nesting, vegetation treatment would be needed to maintain and further restore this site as well. Inclusion of this area as a primary treatment area would increase the total acreage by 112.

Globally Significant Plant Communities - Vegetation management will focus primarily on control of aggressive non-native plant species colonizing within or encroaching upon globally significant plant communities. Globally significant plant communities identified as primary areas in which treatment could be reasonably expected during the life of this Plan and the species targeted for control, in order of priority are: 1) American dunegrass community restoration, targeted control species is European beachgrass; 2) seashore bluegrass community restoration, targeted control species is European beachgrass; 3) red fescue communities in good to excellent condition which contain a seashore bluegrass component, targeted control species are European beachgrass and Scot's broom; 4) red fescue communities in good to excellent condition which do not contain seashore bluegrass, target control species is European beachgrass; and 5) shore pine/hairy manzanita-bearberry communities in good to excellent condition, target control species is Scot's broom. Total area within primary treatment areas is 465 acres.

Both the American dunegrass and seashore bluegrass communities are native to foredune areas of the NRA. Quality of the these communities is currently low in all foredune areas, and restoration could logically be incorporated into snowy plover projects.

Reduction of Fire Threat - Focus will be on reducing fuel loading and fuel continuity in and around high use recreation areas to reduce fire threat to public safety and property. Work may consist of widening access routes and reducing fuels along them to allow safe egress of the public and safe access for emergency firefighting resources in the event of a wildfire. Shore pine/Scot's broom plantations may be removed in strategic locations to break up fuel continuity in areas of high risk for starts. Primary treatment areas in which vegetation treatment could be reasonably expected during the life of this Plan, in order of priority are: 1) the Siltcoos corridor; 2) the area around Horsfall Campground and extending north along the east side of Horsfall and Spirit Lakes; and 3) the area around Horsfall Beach parking area extending east to Wild Mare Campground. Total area within primary treatment areas is 857 acres.

Scenic Qualities - Focus will be on control of aggressive non-native sand stabilizing species and early seral colonizing species (European beachgrass and Scot's broom). Projects in some areas may include removal of portions of shore pine/Scot's broom plantations. Maintenance of a natural appearing landscape and increasing scenic variety will be emphasized by promoting active dune processes. Primary treatment areas in which treatment could be reasonably expected during the life of this Plan, in order of priority, are: 1) the viewshed west of the Oregon Dunes Overlook; 2) the area east and south of the third Umpqua Beach parking lot; and 3) the foregound area viewed from the Taylor Dunes Trail. Total area within primary treatment areas is 875 acres.

Native Species and Habitat Diversity - Wetland maintenance projects will focus on maintaining a range of seral wetland conditions with emphasis on early seral waterfowl habitat in localized areas. Prescribed fire and mechanical treatment are expected to be the primary tools used to attain these objectives. Wetland enhancement projects may focus on expansion of existing wetlands though diking, pothole development or strategic removal of vegetation on stabilized sand to allow natural processes to scour out sand down to the water table.

Maintenance and enhancement of native species and habitats associated with more open sand will focus on treatment of European beachgrass in localized areas to promote active dune processes. Re-establishment of some native plant species in these areas may require outplanting or seeding of locally collected stock. Many objectives identified for this treatment could be accomplished within priority treatment areas identified for other resource objectives such as visual quality, globally significant plant communities and snowy plover habitat. Primary areas in which treatment could reasonably be expected within the life of this Plan, in order of priority, are: 1) the southern portion the South Jetty (Siuslaw River) wetlands emphasis area; 2) the area from Siltcoos Estuary south two miles from the mean high tide line to the western edge of the transition forest, emphasis will include both wetlands (Waxmyrtle Marsh) and active dune habitats and species; 3) the deflation plain wetlands south of the Tenmile Estuary, and 4) the area from Tahkenitch Estuary north one mile (active dune habitats and native species emphasis). Total area of all primary treatment areas is 1,690 acres.

ORV Opportunities - Vegetation management for maintaining and enhancing ORV recreational opportunities will focus on open-sand riding areas. Primary emphasis will be in areas stabilized by European beachgrass. Some Scot's broom and pine plantations may also be removed. Opportunity to test various methods of European beachgrass control and techniques to enhance inland sand migration from the beaches will likely take place in these areas due to easy access for equipment and monitoring. Primary areas in which treatment could reasonably be expected during the life of this Plan, in order of priority, are: 1) from Siltcoos Road north two miles from the high tide line to the eastern portion of the deflation plain; 2) European-beachgrass-dominated areas on the east side of the Umpqua Beach Road and south of the third beach parking lot to the Douglas/Coos county line; and 3) localized areas south of Tenmile Creek and west of Spinreel Campground. Total area of all three primary treatment areas is 1,541 acres.

Water Quality and Quantity - Maintaining and enhancing aquifer water quality and quantity would involve treatment of early and mid-seral vegetation in stabilized areas which support vegetation types with high rates of evapotranspiration (loss of water quantity) or vegetation types which produce acidic soil conditions and increased dissolved iron in ground water (loss of water quality). No primary treatment areas are presently identified for this objective. Studies are currently under way to help determine if vegetation management is feasible in meeting these objectives and provide direction in locating priority treatment areas.

Sand Stability - A number of areas have been identified with maintenance of sand stability as top priority. These areas are all adjacent to roads, private lands or other improvements which could be threatened by destabilization and reactivation of sand movement. Some of these areas fall within primary treatment areas; hence, vegetation may be treated in these areas, but care will be taken in selecting treatment methods and target species to prevent reactivation of sand movement. Additional areas where stability is a concern may be identified during site specific planning.

Management of Research Natural Areas

The Tenmile Creek RNA has been recommended for establishment. Maintain the research potentials of the area until an establishment record has been completed and a decision made as to its RNA status.

Management of Potential Wild and Scenic Rivers

Tahkenitch and Tenmile creeks have been recommended as wild and scenic rivers respectively, in the ROD. Within the river corridor (¼ mile on each side of stream), maintain the outstandingly remarkable values for which they were recommended (scenery, recreation, geology/soils, and wildlife) until final decision is made as to their status.

Purpose, Goals and Future Conditions of Management Areas

The Oregon Dunes NRA is a single management area (MA 10) in the Forest Plan. A management area is a land area for which overall management direction (goals, desired condition, and standards and guidelines) is the same. It varies in important respects from management direction for all other management areas. The total land area within a management area can be either contiguous or an aggregation of a number of separate, smaller land areas.

The NRA is an area for which Congress identified diverse purposes. To achieve these varied purposes, different management activities and public uses may require being separated physically or being located in portions of the NRA with specific resource potentials. The Oregon Dunes NRA management area is, therefore, subdivided with each subdivision treated as a new management area, numbered 10(A) through 10(L). Each of the management areas includes a description of the area's purpose, goals, and a summary of the desired future condition. Following is the number, name and a brief description of each management area.

Management Area 10(A) - Non-Motorized Undeveloped Area

Purpose This management area provides non-motorized recreation opportunities in undeveloped settings.

Goals To provide undeveloped natural areas for dispersed, non-motorized recreation opportunities and protection of resources.

Desired Condition The area generally appears natural and unmodified with few facilities present except for occasional trails, dispersed camps and signs. Large portions of the area are remote and without trails. The area includes a variety of undisturbed and unimpacted habitats. Motorized use is absent except for administrative purposes. Other than near the corridors, recreation use is low-to-moderate and management presence of the Forest Service is low.

Management Area 10(B) - Off Road Vehicle Open

Purpose This management area provides ORV riding opportunities in undeveloped, unvegetated settings.

Goals To provide relatively unrestricted opportunities for off-road vehicle riding in areas that are predominantly open sand.

Desired Condition The area is comprised primarily of open sand dunes. Generally there are low-to-moderate levels of ORV use, except in the more popular play areas and near the access corridors. ORV riding may be restricted at night in some cases. There is little use by recreationists who are not driving ORVs. Forest Service employees engaged in education and enforcement activities are present. Vegetated areas and special habitats such as tree islands and rookeries are free of physical disturbances caused by ORVs. There are few facilities.

Management Area 10(C) - ORVs Restricted to Designated Routes

Purpose This management area protects vegetated habitats while providing controlled opportunities for ORV touring and travel on designated routes.

Goals To minimize ORV impacts in vegetated areas while allowing controlled opportunities for riding and travel through the area on designated routes for access to the beach and other areas which are open for ORV use.

Desired Condition The area is predominantly covered with vegetation. There is little evidence of human use, disturbance or management, except for the presence of a limited number of designated routes suitable for use by ORVs. Some large blocks of vegetation are not crossed by designated routes.

Management Area 10(D) - Developed Corridors

Purpose

This management area provides highway vehicle access to developed facilities designed for a variety of recreation opportunities.

Goals

To provide one or more developed recreation facilities including the access road for highway vehicles.

Desired Condition

A road constructed and maintained for normal highway vehicles exists. One or more developed facilities are located close to the road and all facilities are accessible by motor vehicle or bicycle, or are within easy walking distance of a nearby parking area. Facilities provide high-quality recreation experiences. Many facilities are usable by people with disabilities. To a large degree, facilities are developed so they blend with the natural surroundings when visible from the road. Where there are no facilities, the view from the road is of natural-appearing scenery. Many activities such as habitat management, trail hiking, designated route ORV riding, fishing or wildlife viewing may occur where compatible within corridors.

Class I Corridor (Horsfall and Siltcoos)

Goals

To provide several overnight and day-use recreation opportunities in a concentrated area with paved motor vehicle access between sites.

Desired Condition

A number of highly-developed day use and overnight facilities, many of which are designed to concentrate users, are located along the paved road. All facilities are accessible by motor vehicle. In the area of the developed facilities, human modification of the environment is obvious. Frequently there are numerous people, particularly during summer weekends, and contacts with other recreationists lasts a moderately-to-long time. The presence of Forest Service personnel engaged in enforcement and education activities is obvious.

Class II Corridor (Umpqua Beach and South Jetty)

Goals

To provide numerous day-use sites, but limited overnight opportunities in a concentrated area with paved motor vehicle access between sites.

Desired Condition

A number of moderately-to-highly developed day-use facilities are located along the paved road. Overnight facilities are absent or limited to 1 or 2 walk-in, bike-in, or ride-in camps which are not accessible by motor vehicles. Most facilities serve as a location from which people disperse away from the access corridor. There are usually no more than moderate numbers of people, and contacts with other recreationists are generally moderate in number and low-to-moderate in duration. Human modifications are noticeable, but do not dominate the view. The presence of Forest Service personnel engaged in enforcement and education activities is obvious.

Class III Corridor (Threemile Road and Hauser Access)

Goals

To provide a limited number of small day-use or overnight recreation opportunities with graveled motor vehicle access.

Desired Condition

A few small, developed day-use or overnight facilities are located along the gravel road. The development scale of facilities is low-to-moderate and they may not be accessible by motor vehicle. Most facilities serve as a location from which people disperse away from the access corridor. The number of people is usually low to moderate, and contacts with other recreationists are generally low in number and of short duration. Human modifications are noticeable, but do not dominate the view.

Management Area 10(E) - Snowy Plover Habitat

Purpose

This management area provides suitable and focus areas for creation of additional nesting habitat to help in the recovery of the species.

Goals

To provide suitable nesting habitat to help recovery of the species through protection of existing habitat and creation of additional habitat in appropriate areas.

Desired Condition

The area is generally sand with very little or no vegetation. There are low-to-moderate levels of beach debris such as logs, rocks, clay pieces and bits of shell. Disturbance by humans and predators is low or absent during the nesting season.

Management Area 10(F) - Plant, Fish and Wildlife Habitats

Purpose

This management area provides opportunities to maintain, create, enhance, or restore a variety of plant, fish, and wildlife habitats.

Goals

To maintain, create, enhance or restore a variety of special plant, fish and wildlife habitats.

Desired Condition

Optimum physical and biological conditions necessary for target plant, fish or wildlife communities are present. Diverse habitats of various sizes are dispersed across the Oregon Dunes NRA. Even though management activities have taken place, the area is predominantly natural appearing. Human use and disturbance is low. There is an absence of ORVs (other than for administrative uses) and incompatible behaviors such as disturbing animals or harvesting plants. There are few trails or other facilities.

Following are descriptions of the desired condition for the specific components of this management area:

Forest Habitats

Forest stands have multiple vegetation layers except in communities where this would not naturally occur. Where present, the shrub layer is relatively undisturbed. Different plant communities and tree age groups are spread throughout the management area. Snags and down logs are present in numbers expected to occur naturally. There is an abundance of mushrooms and other decomposers.

Globally Significant Plant Communities

Globally significant plant communities are relatively undisturbed and serve as representative plant associations. There is little evidence of human influence except for control of encroaching non-native vegetation and restoration activities. A few low-standard trails and some non-motorized recreation activities such as hunting, fishing, photography and wildlife viewing may be present.

Meadows

These areas are dominated by native grasses, forbs or a combination of both with abundant new growth. Vegetation which is dense and tall enough to provide hiding and thermal cover surrounds at least 50% of the perimeter of each meadow. The transition between each meadow and the adjacent vegetation is gradual and contains characteristics of both habitat types. However, the size of the grass-dominated area is not diminishing over time. Butterfield Meadow contains some islands of dense shrub cover within the meadow.

Riparian

Riparian areas along lakes and streams where sand dunes are not directly adjacent to the water support diverse, uneven-aged stands of vegetation in late seral stages which provide good fish and wildlife habitat. The riparian canopy consists of several layers of trees, and along with other hiding cover, is dense enough to provide travel corridors for wildlife. The microclimate is different than adjacent sand and upland forest areas because of increased humidity, higher transpiration rate and increased air movement. A few low-standard trails and some non-motorized recreation activities such as hunting, fishing, photography and wildlife viewing may be present. In areas with brackish water, riparian vegetation consists of a healthy saltmarsh community that in some places blends with freshwater communities.

Lakes and Streams

Lakes and ponds contain water year round; seasonal fluctuations in water levels are small. They also contain high quality water, low to moderate amounts of submerged and emergent aquatic vegetation, and diverse habitats for fish. Signs of aquatic vegetation control, addition of nutrients, cover structures and other habitat improvement projects may be present. Structures such as docks and boat ramps to assist anglers in catching fish may also be visible.

Channels of streams contain high quality water and the larger ones supporting anadromous fish (such as the Siltcoos River and Tahkenitch and Tenmile creeks) are easily passable to adult salmonids during migration periods. Water temperatures during time periods when smolts migrate downstream and adults migrate upstream are well-moderated and within tolerance levels of salmonids. Channels of smaller perennial streams in forested areas contain frequent and well-distributed complexes of larger logs. These complexes interact over time and through a wide range of flows to create a high diversity of aquatic habitats. Summer stream temperature regimes in these forest streams are well-moderated with limited day to night variation. Generally cool water temperatures are within tolerances of aquatic organisms naturally found in the system.

Management Area 10(G) - Wetland Emphasis

Purpose This management area provides opportunities to maintain, enhance, create, or restore wetlands.

Goals To maintain, enhance, create or restore wetlands to ensure that this important plant and animal habitat is a varied and healthy component of the Oregon Dunes NRA ecosystems.

Desired Condition There is an abundance of wetland plant communities, including grass, sedge, rush, low shrub, tall shrub and shore pine. The area is predominantly natural appearing even though there are human-caused modifications designed to provide areas which increase the amount of, or prolong the period of, standing water. High-use facilities are absent. There are few humans using the area.

Management Area 10(H) - Wildlife and Fish Viewing

Purpose This management area provides a variety of opportunities for a broad range of recreationists to view and learn about wildlife and plant communities.

Goals To provide a variety of opportunities for a broad range of recreationists with varied physical abilities to view, learn about, and gain an appreciation for wildlife and plant communities.

Desired Condition

A variety of healthy, natural-appearing plant communities and fish and wildlife habitats are present. Plants and animals representative of the various habitats are evident. Although the area generally appears natural, improvements have been made in many of the habitat areas. There are also isolated areas of moderate to high facility development, including many facilities usable by people with disabilities. These facilities provide access to opportunities to see and learn about a variety of habitats along with the species that live in them. Human use and disturbance is generally low to moderate except where facilities have been provided for viewing access. There is an absence of ORVs (other than for administrative uses) and incompatible behaviors such as disturbing wildlife and harvesting plants.

Management Area 10(J) - Proposed Wild and Scenic River

Purpose

This management area maintains the river's free-flowing character and protects or enhances the outstandingly remarkable values of the river and its immediate environment.

Goals

To maintain the river's free-flowing characteristics; to protect and, if practical, enhance the outstandingly remarkable values of the river and its immediate environment.

Desired Condition

The river within the management area is free-flowing with no dams, diversions or rock bank stabilization. Water quality meets or exceeds federal criteria or federally approved State standards.

Following are descriptions of the desired condition for different river classifications within this management area:

Recreational

The river corridor may have substantial evidence of human activity. Parallel roads; bridges; vehicle access points; and recreation, other resource, residential and commercial development, if present and visible, generally blends with the surroundings.

Scenic

The river corridor is largely primitive and undeveloped, with no substantial evidence of human activity. An occasional road, bridge, vehicle access point, dwelling or recreation and other resource development, if present, is generally inconspicuous as seen from the river.

Wild

The river corridor is essentially primitive with little or no evidence of human activity. No roads, bridges, dwellings or recreation and other resource developments are present. Access is by trail or cross-country only.

Management Area 10(K) - Research Natural Area

Purpose

This management area provides focused opportunities for research and is similar to MA 13 in the Forest Plan in terms of management direction.

Goals

To preserve naturally-occurring physical and biological units where natural conditions are maintained as much as possible for the purposes of:

- comparison with those lands influenced by humans

- ecological and environmental studies

- preservation of gene pools of typical, rare and threatened and endangered plants and animals

Desired Condition

The area consists of naturally-occurring physical and biological processes without human intervention. Wildlife representative of the vegetative conditions is present. Some recreation activities compatible with natural systems, such as hiking and birdwatching, may occur.

Management Area 10(L) - Noise-Control Buffer

Purpose

This management area provides a "buffer" of restricted ORV access between NRA lands and private residential areas adjacent to the NRA boundary.

Goals

To reduce ORV noise impacts to nearby residents while allowing restricted ORV access to and from private lands and businesses along the NRA boundary in the Cleawox-Woahink lakes area.

Desired Condition

The area is predominantly open sand. Generally there are low levels of ORV use. Use is restricted to vehicles going to or coming from adjacent private lands. Vehicles are traveling at slow speeds along one of two primary access routes through the area.

Acres per Management Area

The following acreage includes 1,450 acres in the buffer at the south end of the Oregon Dunes NRA.

10(A) Non-Motorized Undeveloped - 7,830 acres

10(B) Off-Road Vehicle Open - 5,930 acres

10(C) ORV on Designated Routes - 4,455 acres

10(D) Developed Corridors - 1,050 acres

10(E) Snowy Plover Habitat - 1,010 acres

10(F) Plant, Fish and Wildlife Habitat - 3,120 acres

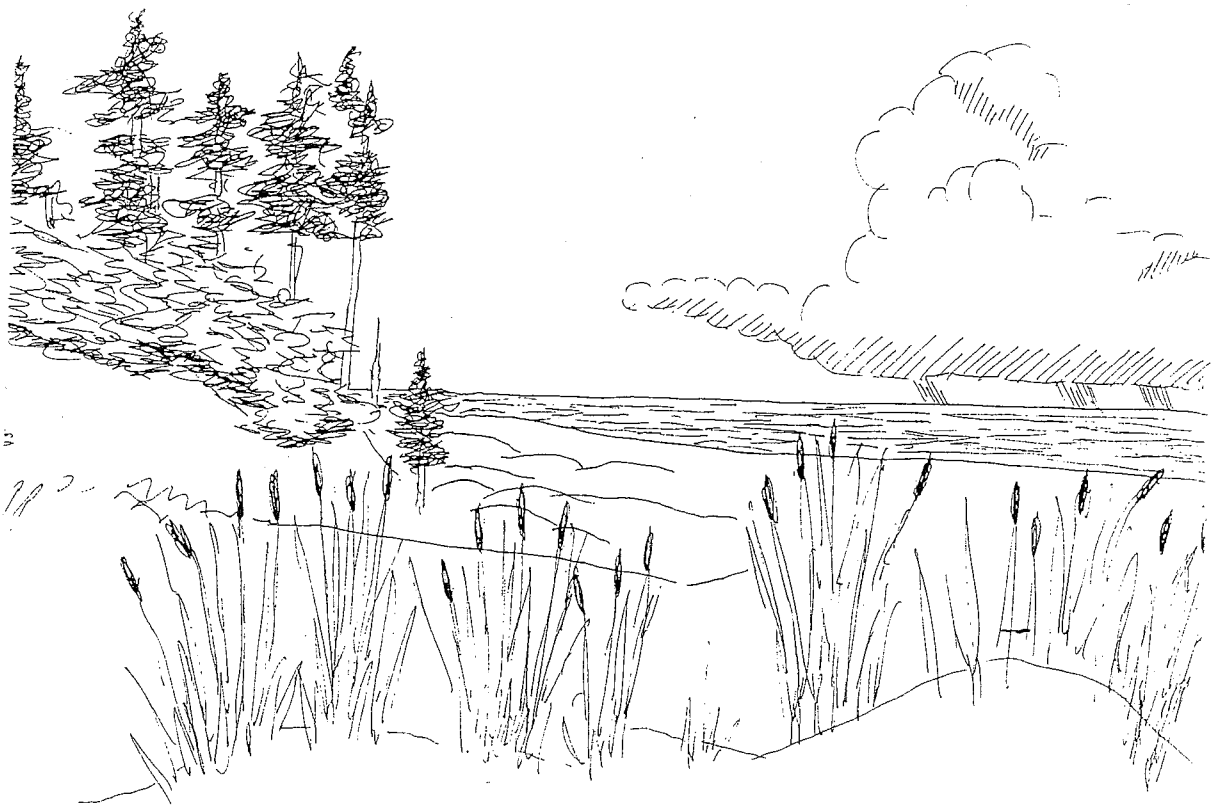
10(G) Wetlands Habitat - 2,540 acres

10(H) Wildlife and Fish Viewing - 315 acres

10(J) Recommend W&S River - 1,090 acres

10(K) Research Natural Area - 1,190 acres

10(L) Noise-Control Buffer - 370 acres



Standards and Guidelines

Standards and Guidelines (S&Gs) are the base level practices used to achieve goals and objectives on national forest lands. Three levels of standards and guidelines apply to management areas on the NRA.

First, since it is a part of the Siuslaw National Forest, all Forest-Wide standards and guidelines apply on the NRA (to all management areas).

Second, Area-Wide standards and guidelines apply to all management areas across the NRA.

Third, each management area has Management-Area-Specific standards and guidelines that apply only to that management area.

Each standard and guideline is given a distinct number for easy reference. Standards and guidelines are provided in the following order: 1) Area-Wide S&Gs; 2) Management-Area-Specific S&Gs; and 3) Forest-Wide S&Gs.

Area-Wide Standards and Guidelines

General

AW- 1. Special Habitats - To the extent possible, prevent activities from adversely affecting special plant and wildlife habitats.

AW- 2. Riparian Protection - Manage activities around the shores of lakes, streams and estuaries to protect visual and water quality.

AW- 3. Water Strategy - Use existing special use permit direction to develop a surface water management strategy with the Coos Bay/North Bend Water Board upon completion of their technical study or within two years of this plan, whichever is earlier.

AW- 4. Coos Bay-North Bend Water Board Municipal Watershed - The dunes aquifer underlying the NRA south of Tenmile Creek may at times serve as a municipal watershed. Contact and cooperate with the Coos Bay/North Bend Water Board during scoping and implementation for any projects or ongoing activities that may affect the municipal watershed or Tenmile Creek, including but not limited to:

a. Small and large construction projects or activities;

b. Planning under NFMA and the NRA Act;

c. Recreational activities;

d. Vegetation control and management activities;

e. Timber, mining, or other resource development activities; and

f. Insect control programs (pesticide applications).

AW- 5. **Signs** - Concentrate signs in existing corridors except for occasional use in undeveloped areas.

Recreation, Facilities and Roads

AW- 6. **Dispersed Recreation** - Ensure that dispersed recreation occurring within special wildlife or plant areas does not reduce the suitability of such habitats.

AW- 7. **Dispersed Camping** - Prevent concentrated dispersed camping in wetland and riparian areas and tree islands.

AW- 8. **Dispersed Camping** - Prohibit dispersed camping within 200 feet from the edge of roads and developed facilites to protect scenery and public health.

AW- 9. **ORV Areas** - The NRA is open to ORV use except for those Management Areas (or portions of Management Areas) that are specifically closed to such use.

AW-10. **ORV Noise** - Enforce (via CFR subpart B order and/or Oregon Administrative Rule) ORV noise goals of 95 decibels beginning in 1997 and 90 decibels in 1999.

AW-11. **Snowy Plover** - Locate facilities, roads, trails and designated routes away from snowy plover nesting habitat.

AW-12. **Snowy Plover** - Prohibit public use, when necessary, in snowy plover nesting habitat during breeding season (approximately 15 March - 15 September) either by signing or roping, fencing, or otherwise delineating the area. Closure areas would be established through monitoring of plover activities and coordination with USFWS and ODFW. More stringent regulations will be established if monitoring results warrant.

AW-13. **New Facilities** - Limit construction of new facilities and paved and gravel roads to existing corridors (see Management Area 10(D)) to maintain undeveloped recreation settings (SPM and SPNM); exceptions are small facilities associated with fish, wildlife, cultural and recreation opportunities.

AW-14. **Separate Uses** - Develop and manage trails and facilities to separate incompatible uses, such as hiking and mountain biking.

AW-15. **Special Habitats** - Design new roads, designated routes, trails and facilities to minimize impacts to special wildlife and plant habitats including wetlands, tree islands, riparian areas, lakes, streams and special breeding areas.

AW-16. **Snag Protection** - Design new trails and facilities to minimize impacts to snags particularly important to wildlife.

AW-17. **VQOs** - Ensure that facilities and signs meet the visual quality objectives for the area in which they are located.

AW-18. **Disabled Access** - Ensure that facilities and other improvements meet accessibility standards for people with disabilities.

AW-19. **Closed Facilities** - Obliterate or barricade all recognized roads, trails, campgrounds and other facilities when they are permanently closed.

Interpretation

AW-20. **Vegetation Control** - Inform people about control and eradication efforts and encourage participation in vegetation control.

AW-21. **Feeding Wildlife** - Educate visitors about the harmful effects of feeding wildlife.

AW-22. **Strategy** - Design and implement an interpretive strategy within 2 years of approval of the Dunes Plan.

AW-23. **Suitable Areas** - Provide information directing recreationists to areas best suited for the activities in which they are interested.

AW-24. **ORV Areas** - Display ORV-open areas on all NRA maps.

AW-25. **Angler Expectations** - Use interpretive material to bring angler expectations into line with the catch rates and average size of fish that a particular lake or stream is capable of producing.

AW-26. **Unique Habitats** - Develop interpretive materials such as signs, brochures, news articles or programs which convey information about the unique wildlife and plant habitats of the NRA, the value of these habitats, unique viewing opportunities and ways that recreationists can minimize impacts to habitats or species.

AW-27. **Recreation Opportunities** - Include information about the range of recreation opportunities including dispersed camping and cross-country hiking.

Fish/Riparian

AW-28. **Fish Populations** - In cooperation with Oregon Department of Fish and Wildlife (ODFW), determine changes in the presence, size-structure and relative condition of fish species over a period of 3 years.

AW-29. **Management Strategy** - Develop a management strategy for lakes where people fish within 3 years of Dunes Plan approval.

AW-30. **Regulations and Stocking** - Encourage ODFW to use specialized harvest regulations and to introduce warm- and cold-water species to manipulate predator-prey relationships and enhance the stock of large fish.

AW-31. **Varied Fishing** - Provide a range of experiences by managing for different fishing opportunities on different lakes.

Plant and Wildlife

AW-32. **Special Forest Products** - Restrict Christmas tree cutting, fuelwood gathering, mushroom picking and other special forest products collection to designated areas.

AW-33. **Abandoned Access** - Plant or seed abandoned roads, trails, designated routes or other areas if natural regeneration is not expected to be adequate or if immediate vegetation recovery is desired.

AW-34. **Native Plants** - Promote the restoration of native plant communities, especially those which were historically more prevalent on the Oregon Dunes NRA or along the Oregon Coast.

AW-35. **Native Plants** - When sand stabilization or revegetation is necessary, follow the Regional native species policy in utilizing native plant species.

AW-36. **Non-Native Plants** - To the extent possible, control or eradicate plants such as gorse, tree lupine, purple loosestrife, parrot feather or water milfoil which are replacing or impacting native plant communities.

AW-37. **Tree Cutting** - Cut live trees only to meet plant, wildlife, riparian, fish, research or recreation objectives or in limited areas to allow construction of roads, trails or other facilities.

AW-38. **Viewing Areas** - Coordinate development of wildlife viewing areas with ODFW to reduce conflicts between hunters and wildlife viewers.

AW-39. **Harvest Regulations** - Coordinate with ODFW concerning wildlife harvest regulations. Provide information to ODFW about potential concerns, conflicts or opportunities.

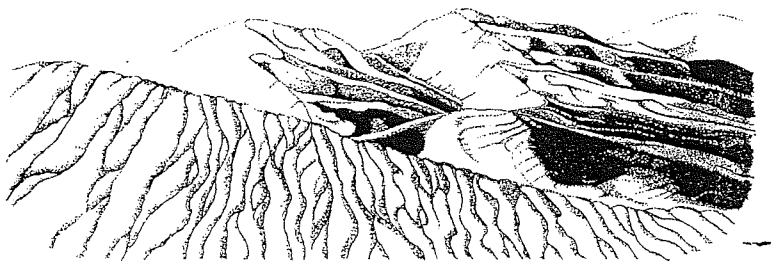
AW-40. **Wood Gathering** - Prohibit wood-gathering within forested areas where down logs are limited except in MA 10(D) .

AW-41. **Snags** - Leave all snags except those which create a safety hazard near campgrounds, popular dispersed camping sites, trails, roads and other facilities.

AW-42. **Access Design** - Locate, design and regularly maintain trails and designated ORV routes so they do not drain wetlands or fill channels that are draining wetlands.

Visual Quality

AW-43. **Trails** - Meet the visual quality objective of Retention on all trails.



Management Area 10(A) - Non-Motorized Undeveloped Areas

Goals

To provide undeveloped natural areas for dispersed, non-motorized recreation opportunities and protection of resources.

Desired Condition

The area generally appears natural and unmodified with few facilities present except for occasional trails, dispersed camps and signs. Large portions of the area are remote and without trails. The area includes a variety of undisturbed and unimpacted habitats. Motorized use is absent except for administrative purposes. Other than near the corridors, recreation use is low-to-moderate and management presence of the Forest Service is low.

Management Area 10(A) Standards and Guidelines

Recreation, Facilities and Roads

A- 1. **ROS Standards** - Where possible, manage to meet SPNM standards; otherwise meet RN standards.

A- 2. **Undeveloped Areas** - Maintain at least two 1,200-acre areas without trails.

A- 3. **Trail Construction** - Construct trails at More Difficult - Most Difficult standards (FSH 2309.18).

A- 4. **Habitat Protection** - Minimize impacts of new and existing trails on plant and wildlife habitat, species and habitat components.

A- 5. **Minimize Impacts** - Design and locate facilities primarily to channel and minimize human impacts rather than for visitor convenience.

A- 6. **Natural Appearance** - Construct small facilities (15 PAOTS or less) that blend with the natural landscape.

Plant and Wildlife

A- 7. **Habitat Enhancement** - Protect and enhance habitats which provide diverse, unstructured plant and wildlife viewing opportunities.

A- 8. **Natural Appearance** - Make habitat enhancements look as natural as possible.

Management Area 10(B) - Off-Road Vehicle Open

Goals

To provide relatively unrestricted opportunities for off-road vehicle driving.

Desired Condition

The area is comprised primarily of open sand dunes. Generally there are low-to-moderate levels of ORV use, except in the more popular play areas and near the access corridors. ORV riding may be restricted at night in some cases. There is little use by recreationists who are not driving ORVs. Forest Service employees engaged in education and enforcement activities are present. Vegetated areas and special habitats such as tree islands and rookeries are free of physical disturbances caused by ORVs. There are few facilities.

Recreation, Facilities and Roads

B- 1. **ORV Use** - ORVs may be operated except in those localized areas closed to protect special habitats or unique geologic features.

B- 2. **Curfews** - Close the South Jetty to Siltcoos area to ORV riding from 10 p.m. to 6 a.m. and the Tenmile to Horsfall area from midnight to 6 a.m. to reduce noise impacts to nearby residents and other recreationists outside of this management area.

B- 3. **Natural Appearance** - Construct small facilities (15 PAOTS or less) that blend with the natural landscape.

B- 4. **Access Design** - Locate and design facilities primarily for channeling and minimizing human impacts rather than for visitor convenience.

B- 5. **ROS Standards** - Manage to meet SPM standards.

B- 6. **Dispersed Camping** - Allow dispersed camping by permit in designated sites only.

Interpretation

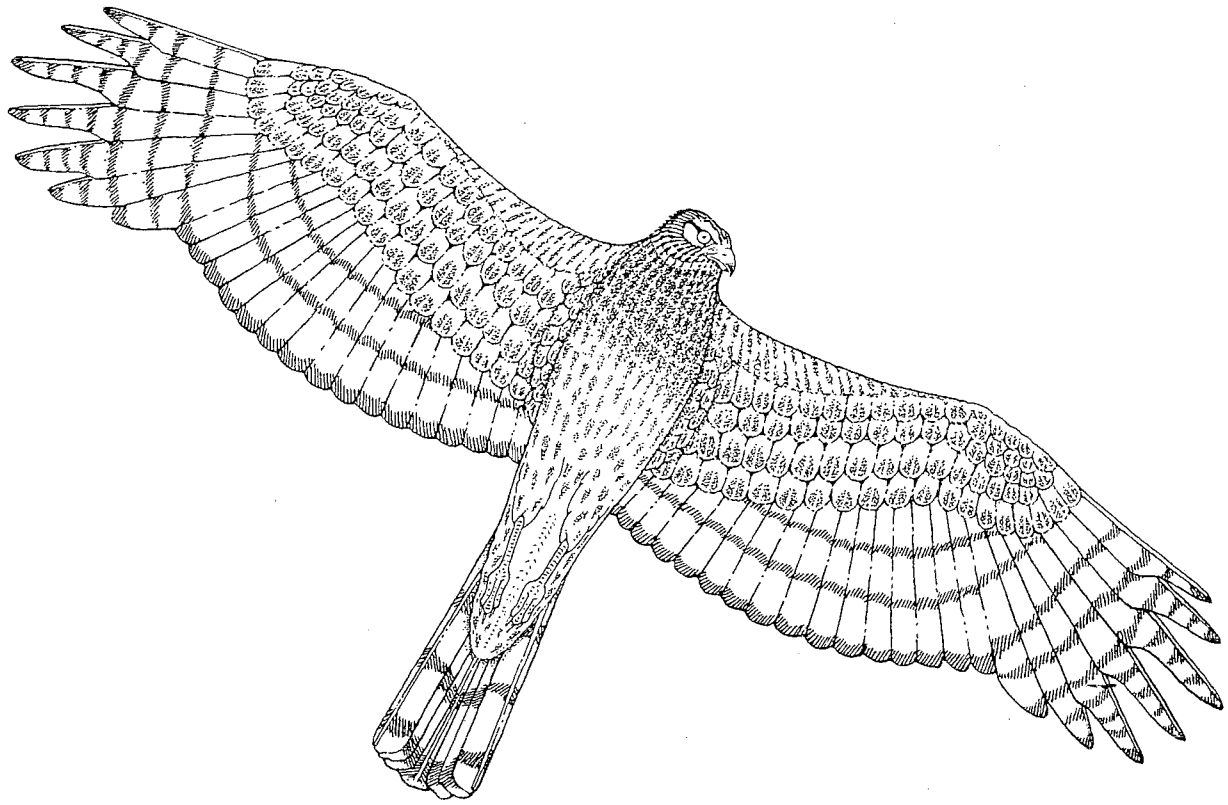
B- 7. **ORV Information** - Post signs at all access points to inform non-motorized users that the area is open to ORVs. Where appropriate, include information about use regulations, noise standards,, the area, environment, history and ORV safety.

B- 8. **Safety Education** - Coordinate with ORV groups to provide safety education to ORV riders.

Plant and Wildlife

B- 9. **Special Habitats** - Use signs and barriers where necessary to protect special habitats within and adjacent to MA 10(B).

B- 10. **Viewing Opportunities** - Enhance conditions for plants and wildlife and provide facilities to increase wildlife-viewing opportunities for ORV riders.



Management Area 10(C) - ORVs Restricted to Designated Routes

Goals

To protect existing vegetated areas while providing controlled opportunities for ORV riding and travel on designated routes through the area to reach the beach and other areas which are to open ORV use.

Desired Condition

The area is predominantly covered with vegetation. There is little evidence of human use, disturbance or management, except for the presence of a limited number of designated routes suitable for use by ORVs. Some large blocks of vegetation are not crossed by designated routes.

Recreation, Facilities and Roads

C- 1. **ORV Use** - ORVs may be operated only on designated routes.

C- 2. **ROS Standards** - Manage to meet SPM standards.

C- 3. **Designated Routes** - Identify designated routes within 3 years of Dunes Plan approval. Obliterate or allow all other routes to revert naturally.

C- 4. **Curfews** - Close the South Jetty to Siltcoos area to ORV riding from 10 p.m. to 6 a.m. and the Tenmile to Horsfall area from midnight to 6 a.m. to reduce noise impacts to nearby residents and other recreationists outside of this management area.

C- 5. **Dispersed Camping** - Allow dispersed camping by permit in designated sites only.

C- 6. **Route Maintenance** - Maintain designated routes regularly to minimize wetland draining and other resource impacts.

C- 7. **Minimize Impacts** - Locate and design facilities primarily for channeling and minimizing human impacts rather than for visitor convenience.

C- 8. **Natural Appearance** - Construct small facilities (15 PAOTS or less) that blend with the natural landscape.

Interpretation

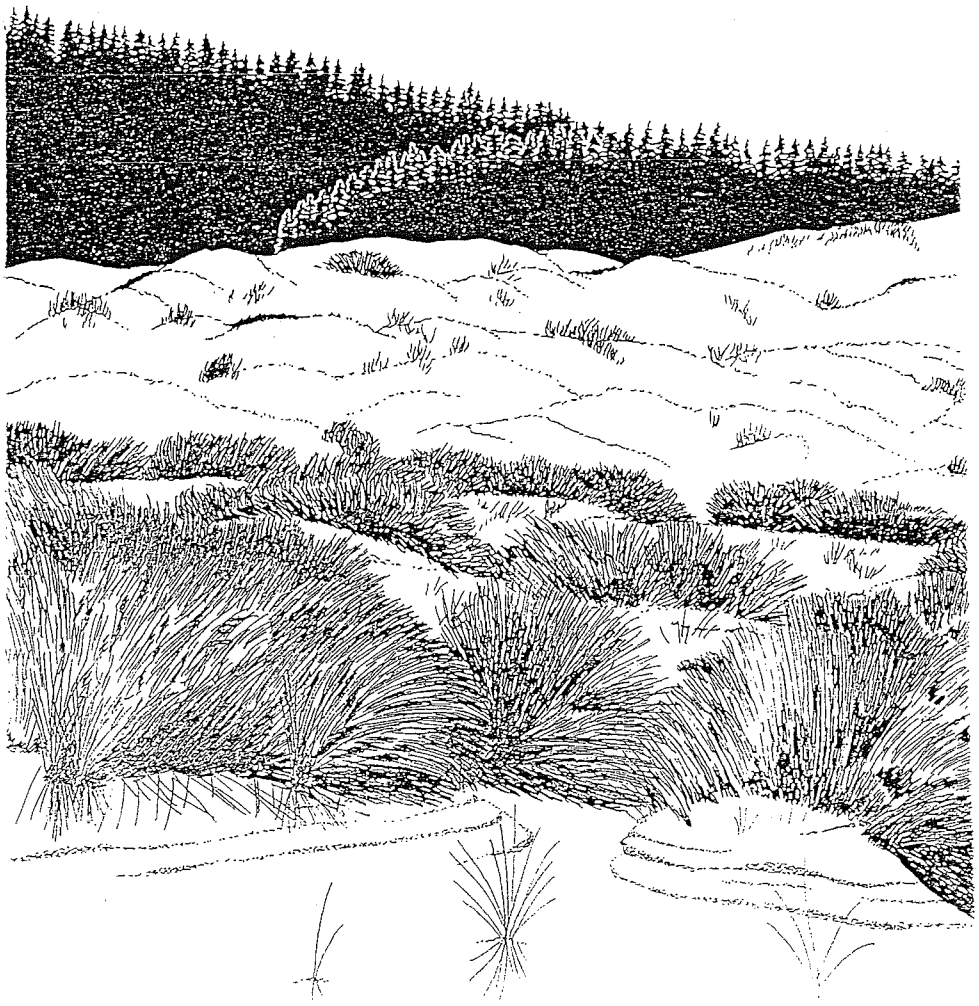
C- 9. **Non-Motorized Users** - Post signs where appropriate to inform non-motorized users that designated routes are intended for ORV users.

C- 10. **ORV Users** - Post signs where appropriate to inform ORV users about the intent and use of designated routes.

Plant and Wildlife

C- 11. **Designated Routes** - Designate limited routes in wetlands only to connect riding areas or reach the beach.

C- 12. **Special Habitats** - To the extent possible, maximize the distance between designated routes and special wildlife habitats such as heron rookeries and other breeding areas.



Management Area 10(D) - Developed Corridors

Goals

To provide one or more developed recreation facilities including the access road for highway vehicles.

Desired Condition

A road constructed and maintained for normal highway vehicles exists. One or more developed facilities are located close to the road and all facilities are accessible by motor vehicle or bicycle, or are within easy walking distance of a nearby parking area. Facilities provide high-quality recreation experiences. Many facilities are usable by people with disabilities. To a large degree, facilities are developed so they blend with the natural surroundings when visible from the road. Where there are no facilities, the view from the road is of natural-appearing scenery. Many activities such as habitat management, trail hiking, designated route ORV riding, fishing or wildlife viewing may occur where compatible within corridors.

Class I Corridor (Siltcoos and Horsfall)

Goals - To provide several overnight and day-use recreation facilities in a concentrated area with paved motor vehicle access between sites.

Desired Condition - A number of highly-developed day use and overnight facilities, many of which were designed to concentrate users, are located along the paved road. All facilities are accessible by motor vehicle. In the area of the developed facilities, human modification of the environment is obvious. Frequently there are numerous people, particularly during summer weekends, and contacts with other recreationists lasts a moderately-to-long time. The presence of Forest Service personnel engaged in enforcement and education activities is obvious.

Class II Corridor (South Jetty and Umpqua Beach)

Goals - To provide numerous day-use sites, but limited overnight facilities in a concentrated area with paved motor vehicle access between sites.

Desired Condition: A number of moderately-to-highly developed day-use facilities are located along the paved road. Overnight facilities are absent or limited to 1 or 2 walk-in, bike-in, or ride-in camps which are not accessible by motor vehicles. Most facilities serve as a location from which people disperse away from the access corridor. There are usually no more than moderate numbers of people, and contacts with other recreationists are generally moderate in number and low-to-moderate in duration. Human modifications are noticeable, but do not dominate the view. The presence of Forest Service personnel engaged in enforcement and education activities is obvious.

Class III Corridor (Threemile Road and Hauser)

Goals - To provide a limited number of small day-use or overnight recreation facilities with graveled motor vehicle access.

Desired Condition - A few small, developed day-use or overnight facilities are located along the gravel road. The development scale of facilities is low-to-moderate and they may not be accessible by motor vehicle. Most facilities serve as a location from which people disperse away from the access corridor. The number of people is usually low to moderate, and contacts with other recreationists are generally low in number and of short duration. Human modifications are noticeable, but do not dominate the view.

Recreation, Facilities and Roads

D- 1. **Motor Vehicles** - Permit ORVs and highway vehicles to use the same roadways only within those developed facilities open to ORV use.

D- 2. **Curfews** - Enforce midnight to 6 a.m. quiet hours in Horsfall and Spinreel campgrounds. All other campgrounds have quiet hours from 10 p.m. to 6 a.m.

D- 3. **Trail Construction** - Construct trails at Easiest - More Difficult standard (FSH 2309.18).

D- 4. **Corridor Class** - Do not add facilities or road upgrades that would alter the corridor class during this planning period.

D- 5. **ROS Standards** - Manage roadways and smaller recreation facilities to meet RN standards.

D- 6. **ROS Standards** - Manage larger recreation facilities to meet R standards.

D- 7. **Use Limits** - Limit use in developed corridors to the designed capacity of the facilities within that corridor.

Interpretation

D- 8. **Facilities** - Provide interpretive activities such as campfire programs, guided walks, self-guided trail brochures, auto-route guides and signs within or adjacent to the developed recreation facilities in the corridors.

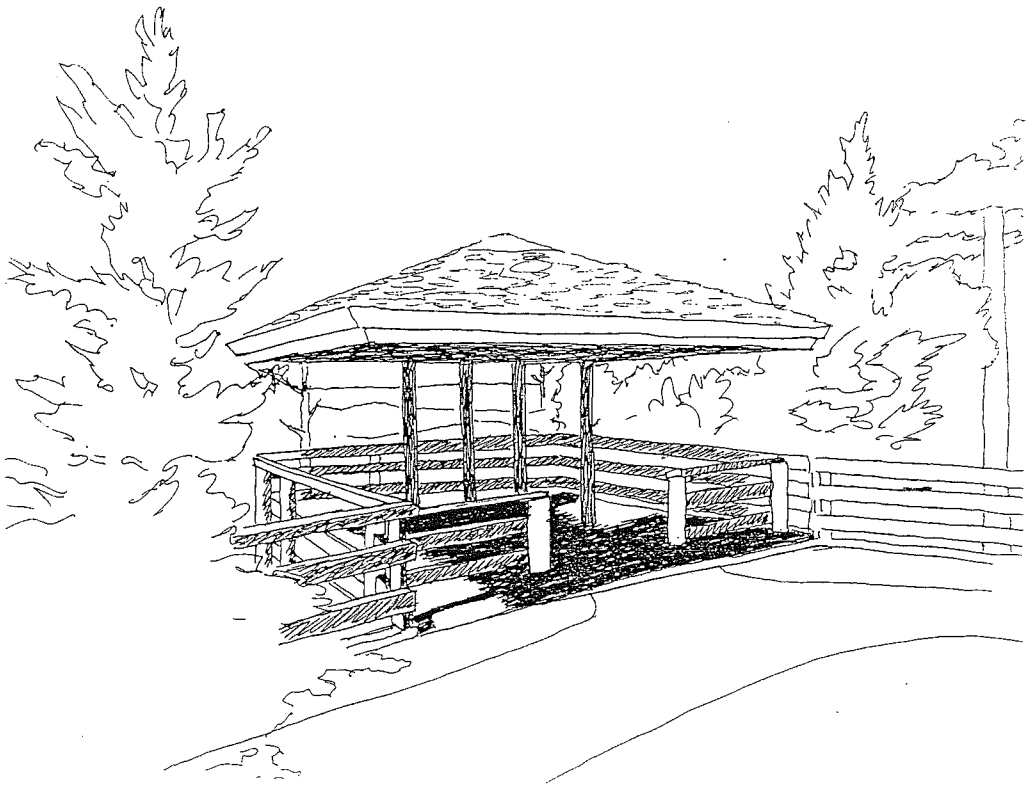
Plant and Wildlife

D- 9. **Viewing Opportunities** - Manage wildlife and plant habitats in or adjacent to major corridors to provide easily-accessible viewing opportunities.

Visual Quality

D- 10. **Corridors/Facilities** - Meet the applicable visual quality objective in the following corridors and facilities.

Highway 101- Retention
Siltcoos Road - Retention
South Jetty Road - Partial Retention
Umpqua Beach Road - Retention
Horsfall Road - Partial Retention
Threemile Road - Retention
Oregon Dunes Overlook - Retention
High Dunes Overlook - Partial Retention



Management Area 10(E) - Snowy Plover Habitat

Goals To provide suitable nesting habitat to help recovery of the species.

Desired Condition The area is generally sand with very little or no vegetation. There are low-to-moderate levels of beach debris such as logs, rocks, clay pieces and bits of shell. Disturbance by humans and predators is low or absent during the breeding season.

Recreation, Facilities and Roads

E- 1. **ROS Standards** - Manage to meet SPM or SPNM standards.

E- 2. **Dispersed Camping** - Close the area to dispersed camping during the breeding season (15 March - 15 September).

E- 3. **Facilities** - Do not construct facilities. See also AW-11.

E- 4. **Facilities** - Manage existing public access facilities (including parking lots and trails) to minimize potential impacts to nesting birds.

E- 5. **Habitat Enhancement** - Do not locate habitat enhancement sites within 1/4 mile of trails accessing the beach to minimize conflicts between recreationists and plovers.

Interpretation

E- 6. **Interpretation** - Exclude interpretive activities, except signing, during the breeding season.

Plant and Wildlife

E- 7. **Dogs** - Prohibit dogs from snowy plover nesting areas during the nesting season.

E- 8. **Predation** - Minimize predation in snowy plover nesting areas.

E- 9. **Coordination** - Cooperate and coordinate management and monitoring with State agencies, USFWS and the Snowy Plover Working Team (or Recovery Team, when established).

E- 10. **Driftwood** - Prohibit campfires or removal of driftwood.

Management Area 10(F) - Plant, Fish and Wildlife Habitats

Goals

To maintain, create, enhance or restore a variety of special plant, fish and wildlife habitats.

Desired Condition

Optimum physical and biological conditions necessary for target plant, fish or wildlife communities are present. Diverse habitats of various sizes are dispersed across the Oregon Dunes NRA. Even though management activities have taken place, the area is predominantly natural appearing. Human use and disturbance is low. There is an absence of ORVs (other than for administrative uses) and incompatible behaviors such as disturbing animals or harvesting plants. There are few trails or other facilities.

Following are descriptions of the desired condition for the specific components of this management area:

Forest Habitats

Forest stands have multiple vegetation layers except in communities where this would not naturally occur. Where present, the shrub layer is relatively undisturbed. Different plant communities and tree age groups are spread throughout the management area. Snags and down logs are present in numbers expected to occur naturally. There is an abundance of mushrooms and other decomposers.

Globally Significant Plant Communities

Certain globally significant plant communities are relatively undisturbed and serve as representative plant associations. There is little evidence of human influence except for control of encroaching non-native vegetation and restoration activities. A few, relatively undeveloped trails and some non-motorized recreation activities such as hunting, fishing, photography and wildlife viewing may be present.

Meadows

These areas are dominated by native grasses, forbs or a combination of both with abundant new growth. Vegetation which is dense and tall enough to provide hiding and thermal cover surrounds at least 50% of the perimeter of each meadow. The transition between each meadow and the adjacent vegetation is gradual and contains characteristics of both habitat types. However, the size of the grass-dominated area is not diminishing over time. Butterfield Meadow contains some islands of dense shrub cover within the meadow.

Riparian

Riparian areas along lakes and streams where sand dunes are not directly adjacent to the water support diverse, uneven-aged stands of vegetation in late seral stages which provide good fish and wildlife habitat. The riparian canopy consists of several layers of trees, and along with other hiding cover, is dense enough to provide travel corridors for wildlife. The microclimate is different than adjacent sand and upland forest areas because of increased humidity, higher transpiration rate and increased air movement. A few, relatively undeveloped trails and some non-motorized recreation activities such as hunting, fishing, photography and wildlife viewing may be present. In areas with brackish water, riparian vegetation consists of a healthy saltmarsh community that in some places blends with freshwater communities.

Lakes and Streams

Lakes and ponds contain water year round; seasonal fluctuations in water levels are small. They also contain high quality water, low to moderate amounts of submerged and emergent aquatic vegetation, and diverse habitats for fish. Signs of aquatic vegetation control, addition of nutrients, cover structures and other habitat improvement projects may be present. Structures such as docks and boat ramps to assist anglers in catching fish may also be visible.

Channels of streams contain high quality water and the larger ones supporting anadromous fish (such as the Siltcoos River and Tahkenitch and Tenmile creeks) are easily passable to adult salmonids during migration periods. Water temperatures during time periods when smolts migrate downstream and adults migrate upstream are well-moderated and within tolerance levels of salmonids. Channels of smaller perennial streams in forested areas contain frequent and well-distributed complexes of larger logs. These complexes interact over time and through a wide range of flows to create a high diversity of aquatic habitats. Summer stream temperature regimes in these forest streams are well-moderated with limited day to night variation. Generally cool water temperatures are within tolerances of aquatic organisms naturally found in the system.

Recreation, Facilities and Roads

F- 1. **ROS Standards** - Manage to meet SPNM standards.

F- 2. **Developments** - Limit new developments to trails and small facilities (less than 15 PAOTS) and only those necessary to provide access and interpretation of subject habitat and species.

F- 3. **Concentrate Use** - Use trails and facilities to channel and concentrate human use in areas least impactful to subject habitat and species.

F- 4. **Trail Construction** - Construct trails at More Difficult-Most Difficult standard (FSH 2309.18) but restrict tread and clearing width to the minimum necessary for passage.

F- 5. **Riparian Trails** - Design and construct trails in riparian areas to reduce potential for soil compaction, bank damage, water contamination, and ground-vegetation disturbance.

F- 6. **Dispersed Camping** - Limit dispersed camping to designated sites.

F- 7. **Designated Sites** - Locate designated camping sites to minimize damage to vegetation, lakes and streams.

Interpretation

F- 8. **Interpretation** - Provide opportunities to learn about globally significant plant communities using methods that refrain from damaging the communities.

Fish/Riparian

F- 9. **Cutthroat Trout** - Maintain or enhance production and existing amounts of habitat of native cutthroat trout.

F- 10. **Coho Salmon** - Use selected lakes with outlets for rearing young coho salmon. Maintain existing amounts of habitat for this species.

F- 11. **Vegetation** - Plant and fertilize exposed margins of selected lakes to enhance fish production.

F- 12. **Macrophyte Control** - Use mechanical, biological and chemical methods to keep aquatic macrophytes from covering more than 20% of the surface of selected lakes determined to be important for fishing.

F- 13. **Cover** - Add structures and other cover to lakes determined to be important for warmwater fish production.

Plant and Wildlife

F- 14. **Special Forest Products** - Prohibit gathering of special forest products in globally significant plant communities.

F- 15. **Special Forest Products** - Prohibit gathering of matsutake mushrooms.

F- 16. **Special Forest Products** - Permit collection of special forest products when such activity is neutral or beneficial to ecosystem health.

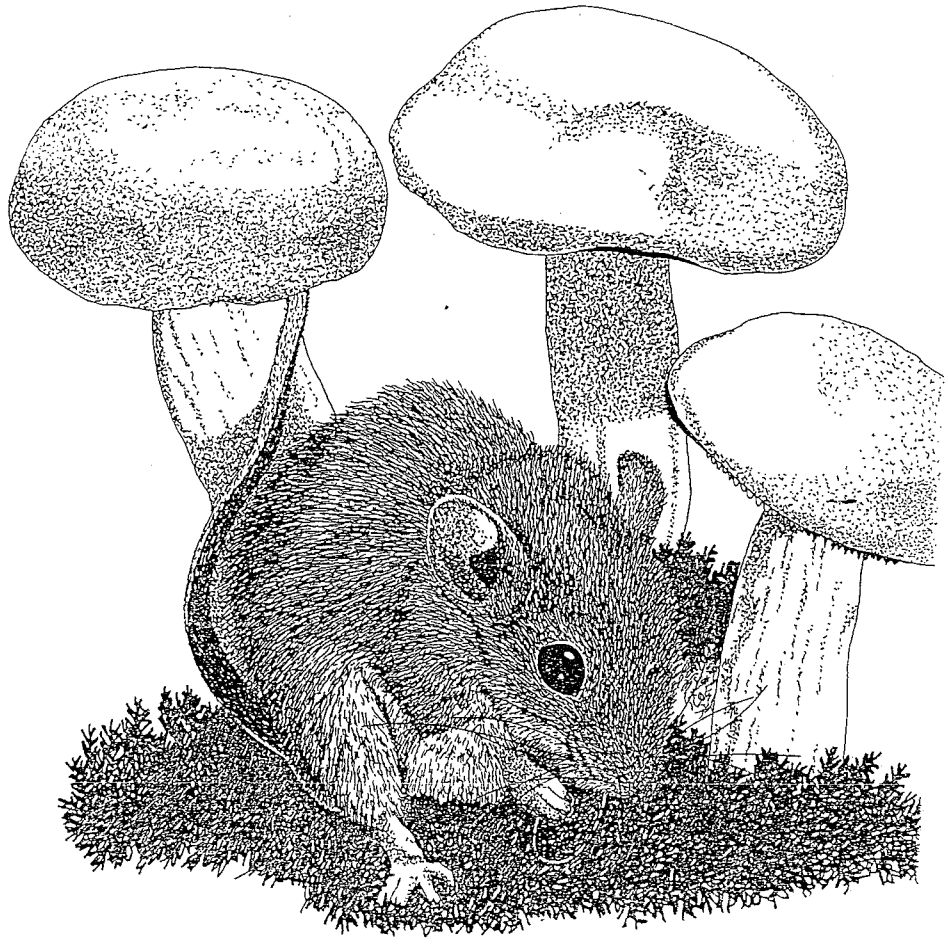
F- 17. **Woody Debris** - Leave all dead and down woody material.

F- 18. **Snags** - Create additional snags and down wood to provide needed wildlife habitat.

F- 19. **Forest Management** - Develop management strategies to enhance wildlife habitat in all forested areas within 4 years of Dunes Plan approval.

F- 20. **Maintaining Meadows** - Maintain meadow habitat by means such as grazing, burning or mowing. Develop strategies within 1 year of Dunes Plan approval for managing meadow habitat at Butterfield and Lodgepole and converting it to native species.

F- 21. **Diversity** - Increase plant community and wildlife habitat diversity across the Oregon Dunes NRA.



Management Area 10(G) - Wetlands Emphasis

Goals

To maintain, enhance, create or restore wetlands to ensure that this important plant and animal habitat is a varied and healthy component of the Oregon Dunes NRA ecosystems.

Desired Condition

There is an abundance of wetland plant communities, including grass, sedge, rush, low shrub, tall shrub and shore pine. The area is predominantly natural appearing even though there are human-caused modifications designed to provide areas which increase the amount of, or prolong the period of, standing water. High-use facilities are absent. There are few humans using the area.

Recreation, Facilities and Roads

G- 1. **ROS Standards** - Manage to meet SPM or SPNM standards.

G- 2. **Developments** - Limit new developments to trails and small facilities (less than 15 PAOTs) and only those necessary to provide access and interpretation of subject habitat and species.

G- 3. **Concentrate Use** - Use trails and facilities to channel and concentrate human use in areas least impactful to subject habitat and species.

G- 4. **Trail Construction** - Construct trails at More Difficult-Most Difficult standard (FSH 2309.18) but restrict tread width and clearing to the minimum necessary for passage.

5. **Designated Routes** - Allow ORV use only on a limited number of designated routes to minimize wetlands and wildlife impacts.

G- 6. **Route Maintenance** - Maintain designated routes regularly to minimize wetland draining and other resource impacts.

Plant and Wildlife

G- 7. **Special Forest Products** - Permit collection of special forest products when such activity is neutral or beneficial to ecosystem health.

G- 8. **Seral Stages** - Maintain a range of wetland seral stages.

G- 9. **Characteristics** - Maintain functional wetland characteristics.

Management Area 10(H) - Plant, Wildlife and Fish Viewing

Goals

To provide a variety of opportunities for a broad range of recreationists to view and learn about wildlife and plant communities.

Desired Condition

A variety of healthy, natural-appearing plant communities and fish and wildlife habitats are present. Plants and animals representative of the various habitats are evident. Although the area generally appears natural, improvements have been made in many of the habitat areas. There are also isolated areas of moderate to high facility development, including many facilities usable by people with disabilities. These facilities provide access to opportunities to see and learn about a variety of habitats along with the species that live in them. Human use and disturbance is generally low to moderate except where facilities have been provided for viewing access. There is an absence of ORVs (other than for administrative uses) and incompatible behaviors such as disturbing wildlife and harvesting plants.

Recreation, Facilities and Roads

H- 1. **Trail Construction** - If feasible, construct trails at Easiest-More Difficult standard (FSH 2309.18) when viewing opportunities are within 1/2 mile of paved roads.

H- 2. **ROS Standards** - Manage to meet RN standards.

H- 3. **Dispersed Camping** - Prohibit dispersed camping.

Interpretation

H- 4. **Varied Opportunities** - Provide opportunities to see and learn about a variety of habitats and species using methods such as signs, brochures, viewing platforms and audio tapes.

H- 5. **Special Forest Products** - Prohibit special forest products collection.

Management Area 10(J) - Proposed Wild and Scenic Rivers

Goals

To maintain the river's free-flowing characteristics; to protect and, if practical, enhance the outstandingly remarkable values of the river and its immediate environment.

Desired Condition

The river within the management area is free-flowing with no dams, diversions or rock bank stabilization. Water quality meets or exceeds federal criteria or federally approved State standards.

Following are descriptions of the desired condition for different river classifications within this management area:

Recreational

The river corridor may have substantial evidence of human activity. Parallel roads; bridges; vehicle access points; and recreation, other resource, residential and commercial development, if present and visible, generally blends with the surroundings.

Scenic

The river corridor is largely primitive and undeveloped, with no substantial evidence of human activity. An occasional road, bridge, vehicle access point, dwelling or recreation and other resource development, if present, is generally inconspicuous as seen from the river.

Wild

The river corridor is essentially primitive with little or no evidence of human activity. No roads, bridges, dwellings or recreation and other resource developments are present. Access is by trail or cross-country only.

NOTE: Standards and guidelines for wild and scenic river areas need to be specific to the stream and the classification. This is normally done during development of the management plan which is required for every stream after designation. Potential standards and guidelines will be developed for each stream recommended for wild and scenic river designation in the FEIS and Management Plan.

Management Area 10(K) - Research Natural Areas

This is the same as Management Area 13 (Research Natural Areas) in the Forest Plan.

Goals

To preserve naturally-occurring physical and biological units where natural conditions are maintained as much as possible for the purposes of:

- comparison with those lands influenced by humans
- ecological and environmental studies
- preservation of gene pools of typical, rare and threatened and endangered plants and animals

Desired Condition

The area consists of naturally-occurring physical and biological processes without human intervention. Wildlife representative of the vegetative conditions is present. Some recreation activities compatible with natural systems, such as hiking and birdwatching, may occur.

Recreation, Roads and Facilities

K- 1. **Closures** - Institute closures or permits if recreational uses threaten research or educational values.

K- 2. **Existing Trails** - Allow existing trails to remain as long as RNA objectives are not compromised.

K- 3. **Trail Construction** - Construct new trails only if they are needed for research purposes.

K- 4. **Hazard Trees** - Fell hazard trees along boundary trails or roads for safety. Keep felled trees in place, unless lying across the trail or road.

K- 5. **Buildings** - Allow buildings or other facilities only if they are temporary and serve research purposes.

K- 6. **Special Uses** - Approve minimal, temporary, or semi-permanent research facilities and installations under permit.

K- 7. **Rights of Way** - Honor rights-of-way easements, including utility corridors, existing before RNA establishment. Discourage upgrading that would compromise objectives of the RNA.

K- 8. **FERC Permits** - Do not recommend Federal Energy Regulatory Commission licenses or permits that compromise objectives of the RNA.

K- 9. **Land Acquisition** - Retain all national forest lands and acquire private inholdings (Ownership Group II).

Interpretation

K- 10. **Educational Use** - Direct educational use of an RNA toward the graduate level, but it may be approved for any educational level.

K- 11. **Interpretation** - Prohibit on-site interpretive or demonstrative facilities.

K- 12. **Publicity** - Avoid publicity that would attract the general public to the RNA.

Plant and Wildlife

K- 13. **Animal Control** - Consider control of excessive animal populations where they threaten RNA objectives.

K- 14. **Exotic Species** - Prohibit introduction of exotic plant and animal species.

K- 15. **Habitat Enhancement** - Approve habitat improvement projects if they meet objectives of the RNA.

K- 16. **Reintroductions** - Permit reintroduction of former native species as long as objectives of the RNA are met.

K- 17. **Stocking** - Prohibit fish stocking, except as provided under K-16 above.

K- 18. **Grazing** - Do not permit grazing of domestic livestock within the RNA unless it is essential to maintain a specific vegetation type.

K- 19. **Vegetation Removal** - Prohibit cutting and removal of all vegetation, including firewood, except as part of approved scientific investigations.

K- 20. **Soil Disturbance** - Develop and implement rehabilitation plans in the event of soil disturbing activities such as fire suppression.

K- 21. **Suppression Methods** - Use suppression methods and equipment that will minimize disturbance to special features of the area.

K- 22. **Rehabilitation** - Rehabilitate the fire area after suppression actions to return it to a natural condition consistent with MA objectives.

K- 23. **Fire Retardants** - Avoid chemical fire retardants if possible.

K- 24. **Fuel Management** - Allow fuels to accumulate at natural rates unless they threaten the objectives of the RNA.

K- 25. **Pest Management** - Take action against insects or diseases only if the outbreak drastically alters natural ecological processes within the RNA.

K- 26. **Special Forest Products** - Prohibit special forest products collection.

Research

K- 27. **Establishment Record** - Complete an establishment record for any recommended RNAs and submit records for approval within three years of Dunes Plan record of decision.

Management Area 10(L) - ORV Noise-Control Buffer

Goals

To reduce ORV noise impacts to nearby residents while allowing restricted ORV access to and from private lands and businesses along the NRA boundary in the Cleawox-Woahink lakes area.

Desired Condition

The area is predominantly open sand. Generally there are low levels of ORV use. Use is restricted to vehicles going to or coming from adjacent private lands. Vehicles are traveling at slow speeds along one of two primary access routes through the area.

Recreation, Roads and Facilities

L- 1. **ORV Use** - ORVs are coming from or going to adjacent private land within east-west aligned corridors.

L- 2. **Curfews** - The area is closed to ORV riding from 10 p.m. to 6 a.m..

L- 3. **Speed** - Restrict vehicle speed to 20 miles per hour.

L- 4. **Signing** - Maintain signs at access into the area and along the boundaries to advise ORV riders of management area intent and riding restrictions.

L- 5. **Boundary Adjustment** - When compliance with ORV noise emission standards meets or exceeds 95% consider reducing or eliminating this management area. Consider enlarging the area if low compliance with noise emission standards persists.

FOREST-WIDE STANDARDS AND GUIDELINES

For your convenience, the following standards and guidelines were reprinted from the Siuslaw National Forest Land and Resource Management Plan. They are applicable on the Oregon Dunes NRA.

Project Planning and Implementation

FW-001 **Project Planning** - Plan and design projects in compliance with NEPA regulations, policy, and procedures, including proposals to modify projects after the initial decision has been made.

FW-002 **Planning Analysis** - Analyze areas larger than the actual project area (third- or fourth-order subbasins) if necessary to estimate cumulative effects, to determine spatial distribution and timing of all projects proposed for implementation, and to ensure that resource management objectives for each MA are being met. The size of the area will depend on the issue being analyzed. Consider activities on lands owned by others as well as on National Forest System (NFS) lands in the analysis.

FW-003 **Timber Constraint** - Harvest no more than 20% of the NFS land in a subbasin in any 10-year period, except for unusual circumstances. (Doesn't apply to Oregon Dunes NRA.)

FW-004 **Timber Planning** - Include analysis of present and future transportation and general logging feasibility in timber sale planning and design. (Doesn't apply to Oregon Dunes NRA.)

FW-005 **Removal Of Facilities** - Abandon or remove existing facilities (e.g, trails, roads, buildings) only when the advantages of removal or abandonment outweigh the disadvantages.

Recreation

FW-006 **ORV Use** - Permit the use of motor vehicles off roads, except where specified otherwise in MA direction in Forest Plan, Appendix D.

FW-007 **ORV Management Plans** - Restrict or prohibit specific types of motor vehicles off roads in areas not already restricted if needed to protect resources, provide for public safety, or minimize conflicts among users. Remove restrictions if adverse effects have been eliminated, and measures have been implemented to prevent reoccurrence (36 CFR 295).

FW-008 **ORV Plan Review** - Annually review ORV management plans and invite public participation if the plan needs revision (36 CFR 295).

FW-009 **Trail Construction** - Construct and maintain trails where they will either provide access to scenic attractions and recreational opportunities or serve as recreational opportunities for a variety of users. When possible, locate trails where adverse effects from or on other management activities will be minimized. When management activities will adversely affect trails, consider relocating the trail temporarily. If the trail is not relocated, reduce the effects of management activities (e.g., residue, stumps, rootwads, and disturbed soil) within 100 feet. Generally, do not reduce harvest volume in order to avoid effects on trails.

FW-010 **Features Inventory** - Develop an inventory of significant scenic attractions and recreational opportunities (e.g., attractive waterfalls or other water features, scenic bedrock features, scenic vistas, small roadside old-growth groves, meadows, significant cultural resource sites, dispersed camps). Maintain a visually pleasing setting around these features. (Visually pleasing settings could range from natural appearing with no vegetation removed from the nearby area to settings where significant modifications of the natural conditions have been made which enhance the appearance or use of the feature while meeting other resource objectives.)

FW-011 **Use Inventory** - Develop an inventory of areas with concentrations of dispersed public use (e.g., fishing, hunting, mushroom picking, mountain bike or horseback riding).

FW-012 **Dispersed Development** - Use the above inventories to plan additional dispersed recreational developments which will help meet projected public demand. Provide appropriate facilities (e.g., access, parking spots, and sanitation facilities) for the scenic attractions, recreational opportunities, or concentrations of dispersed use selected for management.

FW-013 **Interpretation** - Provide interpretation of attractions and features of public interest, including Forest Service resource management activities.

FW-014 **Developed Site Operation** - Operate and maintain existing developed sites in a cost effective manner so that:

- Public health and safety are assured. Follow directions in FSM 2332, 2333, and 7420, and FSH 7409.11, the Sanitary Engineering and Public Health Handbook;
- Facilities are responsive to the needs and desires of the recreating public, while enhancing users' interaction with the natural resource;
- To the degree it is practical, the area within each recreation site is free of barriers. This includes, if possible, a cross-section of all experiences and opportunities available within the site; and
- Sites remain at the ROS class and development scale to which they have been assigned unless an analysis of user demand shows that a change is appropriate.

FW-015 **Developed Site Construction** - Construct new developed recreation sites when either use is expected to exceed seasonal practical capacity within 3 years or an outstanding recreational opportunity can be made available through site development. Ensure that new sites constructed to meet expected increases in use are of a kind, on a development scale, and in a location which is most appropriate for the type of use that is expected to exceed capacity.

FW-016 **Potential Developed Sites** - Identify and manage potential developed recreation sites so they will have a safe, visually attractive vegetative cover which will provide screening, protection from the elements, and visual diversity at the time they need to be developed.

FW-017 **Wild and Scenic Rivers** - To the extent possible on NFS land, maintain the eligibility and potential classification of all rivers determined to be eligible for inclusion in the National Wild and Scenic (W&S) Rivers System until the river has been either designated by Congress or determined to be unsuitable for designation. Encourage cooperation of other public and private landholders to maintain eligibility on their lands as well (W&S Rivers Act of 1968).

The following 7 rivers are eligible for inclusion in the W&S Rivers System:

River	*Potential Classification*
Nestucca River	Recreational
Drift Creek (Siletz)	Scenic, Recreational
Alsea River	Recreational
Siuslaw River	Recreational
North Fork Smith River	Scenic, Recreational
Wassen Creek	Wild, Recreational
Umpqua River	Recreational

FW-018 **Wild River Management** - Along river segments which are eligible for "wild" classification, do not build roads or harvest timber within the potential boundaries. Comply with all standards for "wild" rivers specified in FSH 1909.12, Chapter 8 (1987).

FW-019 **Scenic River Management** - Along river segments which are eligible for "scenic" classification, allow well-screened roads (which may be conspicuous for short stretches), including an occasional bridge. Allow timber harvest and other resource management activities, provided there are no substantial adverse effects on the river and its immediate environment. A resource assessment of the eligible river may be needed to determine adverse effects. Comply with all standards for "scenic" rivers specified in FSH 1909.12, Chapter 8 (1987).

FW-020 **Recreational River Management** - Along river segments eligible for "recreational" classification, allow road construction, timber harvest, and other resource management activities, provided they are done in a way that minimizes surface disturbance, sedimentation and pollution, and impairment of views from the river. Comply with all standards for "recreational" rivers specified in FSH 1909.12, Chapter 8 (1987).

FW-021 **Prohibition of Dams** - Within the authority of the Forest Service, prohibit new dams, diversions, or hydroelectric power facilities on rivers which are eligible for inclusion in the National W&S Rivers System.

FW-022 **Suitability Studies** - Conduct suitability studies for all eligible rivers within 5 years of Forest Plan implementation, or before any Forest Plan revision that might occur sooner.

FW-023 **Cooperation** - Cooperate with the State of Oregon to manage NFS land to be consistent with objectives of their Scenic Waterways Program.

FW-024 **Hunting and Fishing** - Provide consideration during environmental analysis for a diversity of hunting and fishing opportunities.

Cultural Resources

FW-025 **Management** - Manage all cultural resources in compliance with the mandates of federal laws, acts, executive orders, and federal regulations.

FW-026 **Survey Techniques** - Conduct a cultural resource survey before allowing ground disturbing activities. Conduct surveys in accordance with the design mutually accepted by the Oregon State Historic Preservation Office and the Siuslaw National Forest (Toepel 1985). All cultural resources discovered will be protected until evaluated to determine eligibility for the National Register of Historic Places (NRHP). Eligible sites will be preserved or treated in accordance with a mitigation plan approved by the above office and the Advisory Council for Historic Preservation.

FW-027 **National Heritage Preservation Act** - Survey all lands on the Forest for cultural resources to comply with the National Heritage Preservation Act as amended, Sec. 110(2). Compliance surveys will continue to be the first priority, but plans will be developed and money requested to complete the entire survey in a timely manner.

FW-028 **Resource Evaluation** - Assign inventoried cultural resources to thematic groups (e.g, homestead sites, logging sites) to facilitate their evaluation. Classify sites into categories developed by the Oregon State Historic Preservation Office so they fit into the state inventory system.

FW-029 **National Register of Historic Places** - Nominate cultural resources that meet appropriate criteria for the NRHP. Schedule nominations on an incidental basis until completion of the Forest-wide inventory.

FW-030 **Resource Protection** - Protect resources considered eligible for the NRHP by making reasonable efforts to avoid adverse impacts to the resources or by developing a procedure to conserve the values through proper scientific methods and studies. Make additional efforts to protect eligible cultural resources from human depredation and natural destruction. Protection plans may include physical protection such as fences and barriers, scientific study and collection, patrol and site monitoring, proper use or removal of signs to maintain site anonymity, and gaining public understanding and support through education [36CFR 219.24 (4)].

FW-031 **Interpretation** - Provide interpretation of cultural resources for educational and entertainment purposes to the extent consistent with protection, public interest, and management requirements.

FW-032 **Burial Sites** - Protect known human burial sites from disturbance. If an unknown burial site is uncovered, afford it complete protection and respect until the proper people and authorities have been informed. If the burial is American Indian, notify the appropriate tribe immediately.

Visual Quality (Scenery)

FW-033 **VQOs** - Where no visual quality objective (VQO) is specified in management area direction, maximum modification is the minimum standard. Where it is practical and consistent with other resource objectives, blend the management activity with the surrounding landscape more than would be done for maximum modification.

Threatened, Endangered, and Sensitive Animals and Plants

FW-034 **Cooperation** - Identify and manage threatened and endangered (T&E) and sensitive species in cooperation with the USDI Fish and Wildlife Service (USFWS), Oregon Department of Fish and Wildlife (ODFW; fish and wildlife), and Oregon Department of Agriculture (plants).

FW-035 **Conservation** - Meet legal and biological requirements for conservation of T&E and sensitive plants and animals. Evaluate proposed projects that involve significant ground disturbance or have the potential to alter habitat of T&E or sensitive species ~~to~~ determine if any of these species are present (FSM 2670, T&E and R6 Sensitive Plants and Animals.)

FW-036 **Consultation** - Where T&E species are present, make the required determination (a biological assessment for an EIS and a biological evaluation for an environmental assessment) according to the requirements of the Endangered Species Act (Public Law 93-205). Consult with the USFWS and state agencies on each program activity or project that the Forest Service determines may affect T&E species, before any decision is made on the proposed project.

FW-037 **Mitigation** - Specify protection or mitigation requirements before carrying out a project [36 CFR 219.27(a)(8)]. Conduct management activities and manage habitat for existing Federally classified T&E species so as to achieve objectives of existing recovery plans and not impair recovery of any T&E species.

FW-038 **Biological Evaluation** - When T&E and sensitive species and/or their habitat is present, perform a biological (field) evaluation. For sensitive species, consult with knowledgeable and interested authorities. Manage habitat for sensitive plants and animals to ensure that viable populations are maintained throughout their existing range. Management practices and use of species management guides shall assure that species do not become threatened or endangered because of Forest Service actions.

FW-039 **T & E List** - Maintain and update lists of T&E and sensitive plants and animals on the Forest periodically as new information is collected. Submit pertinent Forest information to the Regional Office for updating the Regional Forester's Sensitive Species lists and to the Oregon Natural Heritage Program for inclusion in their statewide Data Base.

FW-040 **Disclosure** - Do not disclose information on the specific location of T&E or sensitive species to the public.

Bald Eagle

FW-041 **Recovery Plan** - Protect and manage bald eagles (a threatened species) and their habitat in accordance with the Pacific Bald Eagle Recovery Plan (USFWS 1986) and Implementation Plan (Bald Eagle Working Team 1989). The USFWS recovery goal for the Forest is 23 nesting pairs. To meet this goal, protect 7 existing and 16 potential nest sites. Protect a minimum of 125 acres of habitat at each site and complete a site specific management plan for each existing and potential nest site (Anthony and Issacs 1989). See MA 4 for S&Gs relating to management of these nest sites.

FW-042 **Cooperation with BLM** - Cooperate with BLM in management of a nest site adjacent to NFS land until plans for the site are updated or revised (Table Mountain Interim Bald Eagle Nest Site Plan, 1987).

FW-043 **Informal Consultation** - Initiate informal consultation with the USFWS to discuss the question of "effect" when a project involving site disturbance is within 1 mile of a bald eagle nest (FSM 2670, Bald Eagle Management and Consultation; Worthington 1980).

FW-044 **Nest Protection** - Protect all bald eagle nest sites, including existing and newly discovered active and inactive sites.

FW-045 **Other Protection** - Protect regularly used feeding and roost sites. Manage human activities to ensure compatibility with bald eagle feeding areas. Use only those Forest practices that maintain suitability of the area for eagle roosting. The radius of the area protected will be at least 330 feet and possibly up to 1/4 mile.

FW-046 **Monitoring** - Monitor occupied bald eagle habitat annually to determine effectiveness of planned action and recovery efforts.

Oregon Silverspot Butterfly

FW-047 **Recovery Plan** - Protect and manage habitat of the threatened Oregon silverspot butterfly in accordance with the USFWS Recovery Plan (Stine 1982) and Forest Implementation Plan (Clady and Parsons 1984; Hammond 1989). Refer to MA 1 for specific S&Gs.

FW-048 **Additional Populations** - Manage habitat of any introduced, newly acquired, or newly discovered population of Oregon silverspot butterflies according to S&Gs for MA 1, and consider it for inclusion in MA 1 through a Forest Plan amendment.

Peregrine Falcon

FW-049 **Recovery Plan** - Although peregrine falcons (an endangered species) are not known to nest on the Forest, there is habitat for nesting and feeding. Protect sufficient existing nesting and feeding habitat to meet the objectives of the Pacific Coast Recovery Plan for the American Peregrine Falcon (USFWS 1982b). The recovery objective for the Forest is 1 pair. Protect any nest found, and protect and enhance associated habitat (such as feeding areas) if necessary.

FW-050 **Management Plans** - Within 3 years after implementation of the Forest Plan, complete an inventory which catalogues habitat suitable for peregrine falcon. Within 1 year after finishing the inventory, complete habitat or nest site management plans for peregrine falcons. Coordinate the development of proposed habitat management plans with the USFWS. Cooperate and coordinate with federal, state, and private organizations involved in recovery efforts.

FW-051 **Disclosure** - Do not disclose information about falcon nest sites to the public.

Northern Spotted Owl

(The following don't apply to Oregon Dunes NRA.)

FW-052 **Habitat Management** - Manage habitat of the spotted owl (a sensitive species proposed for listing as threatened) in accordance with the 1989 direction in Amendment 1 to the Regional Guide (USDA Forest Service 1984a). Refer to MA 3 for specific S&Gs relating to management of Spotted Owl Habitat Areas (SOHAs).

FW-053 **Interagency Agreement** - Assist the Regional Office to meet the terms of the 1988 Interagency Agreement on Spotted Owls. Four agencies (USFS, USFWS, BLM and National Park Service) have agreed to cooperate in an effort to maintain population viability.

FW-054 **Known Sites** - Protect known nest sites and heavily used roost sites (often near nest sites) outside of MA 3 (SOHAs) during the nesting season. Defer timber harvest within an average distance of about 1,000 feet from the nest tree (about 72 acres) until such time that owls have not been there for 3 straight years. The area should conform as much as possible to a "logical harvest unit".

FW-055 **Timber Sale Surveys** - Survey areas proposed for harvest which contain habitat suitable for spotted owls according to standard inventory protocols.

FW-056 **Seasonal Restrictions** - Do not permit activities which may disrupt breeding, rearing or fledging within 1,200 feet of an active spotted owl nest site between February 1 to August 15.

FW-057 **Additional Nest Sites** - When a new nest site is located, evaluate whether it can be incorporated into the Forest network.

Snowy Plover

Status - This species is currently listed as sensitive by the Forest Service, as threatened by ODFW, and as a Federal Candidate Category 2 (in threatened status as of March 1993) species by USFWS. The plover nests, feeds, and winters in sandy areas virtually devoid of vegetation, driftwood, and other structure near salt or brackish waters of the Pacific Ocean and bays. The following S&Gs were developed in accordance with recommendations from USFWS management guidelines and ODFW's draft management plan for snowy plover.

FW-058 **Area Closures** - Post informational signs at trailheads and other entry points to snowy plover nesting areas requesting that pedestrians, pedestrians with dogs, and equestrians avoid walking or riding in nesting areas from March 15 to September 15. Include the estuaries of Sutton Creek, Siltcoos River, Tahkenitch Creek, and Tenmile Creek in the areas posted. Develop and post signs in cooperation with ODFW and the Oregon Department of Transportation.

FW-059 **Public Education** - Initiate public education programs to explain the need for closures and how to avoid impacts when using nesting areas.

FW-060 **Access Facilities** - Manage existing public access facilities to minimize potential impacts to nesting areas. Take plover nesting areas into consideration when planning facilities, and either avoid or mitigate impacts. Access facilities include parking lots and trails which have the potential to direct public use into nesting areas.

FW-061 **Existing Habitat** - Cause no further loss or degradation of existing habitat.

FW-062 **Habitat Enhancement** - As environmental conditions permit and as research determines suitable methods, create nesting habitat through methods such as the removal or control of beach grass or enhancement efforts such as the deposition of dredge spoils in appropriate areas.

FW-063 **Monitoring** - Collect information needed to manage plover populations, including: location, number, and success of nesting plovers; responses of nesting plovers to management practices (especially changes); why existing suitable nesting habitat is not fully utilized; and responses to enhancement efforts.

FW-064 **Cooperation** - Cooperate with ODFW and USFWS in doing surveys and research.

Other Species

FW-065 **Brown Pelican** - Although the California brown pelican (a threatened species) does not nest in Oregon, it is a common visitor along coastal shores and off-shore islands. Manage habitat affecting the species in accordance with the Recovery Plan (USFWS 1983a). Coordinate proposals for habitat enhancement projects with the USFWS.

FW-066 **Aleutian Canada Goose** - The Aleutian Canada goose (an endangered species) does not nest on the Forest, but is a winter migrant along the coast in estuaries and wetlands. Protect and manage the species' habitats in accordance with the Recovery Plan (USFWS 1982a). Coordinate proposals for habitat enhancement projects with the USFWS.

FW-067 **Big-eared Bat** - Evaluate use of habitat by Pacific western big-eared bat (an R6 sensitive and federal candidate species). In cooperation with ODFW, attempt to verify the presence of this species on the Forest. Manage any occupied essential habitat to maintain population stability.

FW-068 **Other Sensitive Animals** - The Regional Forester's list of sensitive species includes animals such as the long-billed curlew, common loon, white-footed vole, and western pond turtle. Continue to evaluate reported sightings of these species. In cooperation with ODFW, attempt to verify the presence and distribution of the species. Provide occupied essential habitat through a species management plan if a species is found on the Forest.

FW-069 **Sensitive Plant Surveys** - Survey all proposed projects that might disturb the ground for sensitive plants. Conduct surveys with qualified personnel at appropriate times of the year to detect presence of sensitive plants, and protect any occupied essential habitat. Forward the survey results to the Forest coordinator on an annual basis. Consult with the Oregon Department of Agriculture regarding new locations of sensitive plants and technical information. (Note: The Regional Forester's list of sensitive species includes 23 plants for the Forest; 9 have been documented on the Forest. Of these, 5 are Federal candidate species (*Abronia umbellata breviflora*, *Cardamine pattersonii*, *Erythronium elegans*, *Filipendula occidentalis*, and *Poa laxiflora*).

Wildlife

FW-070 **Viable Populations** - Manage activities and projects so they do not reduce suitability of habitat needed to maintain viability of species. Determine acceptable levels of effects on the habitat and assure that these levels are not exceeded. (Measures may include support of research, intensive evaluation of habitat conditions, and temporary or intermittent restrictions on public use.)

FW-071 **Special Habitats** - Protect, maintain, and enhance wildlife habitats which are limited on the Forest. These habitats include meadows, marshes, wetlands, estuaries, lakes, ponds, cliffs, talus outcrops, caves, and colonial nest/roost sites. Protection and maintenance of these areas includes consideration of sufficient adjacent area to maintain the integrity and functional character of the habitat. Address management of these sites as part of environmental analysis of specific management activities.

FW-072 **Deciduous-Mix Habitat** - For diversity purposes, maintain at least 5% of the Forest in hardwood and mixed hardwood/conifer stands. These stands should be distributed across the Forest in upland and riparian areas.

Dead and Defective Tree Habitat

FW-073 **Subbasin Objectives** - On NFS land in each subbasin (about 2,000 to 5,000 acres), provide enough snags to support at least 40% of the potential population level of primary cavity-nesting species. This is to ensure adequate distribution of snags throughout the Forest.

FW-074 **Distribution Area Objectives** - Provide snag densities needed for at least a 20% potential population level within land areas that are generally no larger than normal harvest units (maximum of 60 acres). This is to ensure adequate distribution of snags within a given subbasin.

FW-075 **Green Replacement Trees** - Maintain snag densities within distribution areas throughout a full rotation by providing green replacement trees that can be made into, or will become snags of adequate size when existing snags fall.

FW-076 **Patch Size** - Provide 1 or more patches of snags within a distribution area. Patches should be designed so that snags needed to meet the requirements of a pair of the excavator species with the smallest territory size are available within that territory size. Patches should be no closer than 750 feet wherever existing distribution of snags and live trees allows.

FW-077 **Mature Conifer Areas** - Within each mature conifer habitat area managed for pileated woodpecker and marten, provide enough hard snags or green trees for snag mitigation purposes to support at least 60% of the potential population of primary cavity excavator species.

FW-078 **Analysis Procedures** - Calculate the number of snags needed to meet subbasin and distribution area objectives, using Forest species specific information and the general procedure outlined by Norris (1989). Develop Forest guidelines for analysis and implementation of wildlife tree habitats.

FW-079 **Mitigation in Units** - Wildlife trees left in harvest units for mitigation purposes should be hard snags (Classes I, II, and III) and/or green trees to provide for current needs of hard snag dependent species and to serve as a source of future snags. Hard snags and topped green trees left to meet current needs should be at least 20 inches dbh and at least 20 feet tall. Green trees left as future wildlife trees must meet this size requirement by the time they are needed as replacement trees.

FW-080 **Soft Snags in Units** - Leave all soft snags (Classes IV and V) in harvest units except where they would create unacceptable conditions for safety, logging systems, or fire protection.

FW-081 **Down Logs** - Leave at least 2 down conifers per acre on all harvest units. Each log should be greater than 12 inches in diameter, contain a minimum of 40 cubic feet and be in early decay conditions (Class I or II). In core areas managed to provide mature conifer habitat for pileated woodpecker and marten, provide at least 6 down logs per acre, each greater than an average of 20 inches in diameter and 20 feet long.

Fish

FW-082 **Fish Passage** - Design and maintain instream structures to maintain streamflow velocities and channel gradients which permit anadromous and resident fish migration. Provide adequate conditions for fish migration in currently occupied as well as in potential habitat.

FW-083 **Seasonal Restrictions** - When possible, carry out activities which disturb stream channels when there are no salmonid eggs or fry in the stream.

FW-084 **Instream Debris** - In all streams, leave natural and logging-induced debris which has the potential to maintain or enhance stream structure. When practical, remove excess debris which obstructs fish passage or has the potential to degrade the stream channel.

FW-085 **Withdrawal of Water** - Limit the withdrawal of water for Forest Service activities so that instream flows provide adequate habitats for spawning and rearing of fish.

FW-086 **Habitat Enhancement** - Develop fish habitat enhancement projects to open unavailable habitat and rehabilitate deteriorated habitat conditions that are limiting the size of fish populations. Base projects on standardized inventories of instream and riparian conditions, and evaluate their effectiveness. Cooridate priority selection with ODFW.

Riparian Areas

Description of Riparian Area

The following S&Gs apply to the riparian areas along all perennial streams (Class I, II and III), and will be used primarily within the lands that are suitable for timber production on the Forest. The width of the riparian area will vary according to site-specific conditions, and, for the Forest as a whole, is assumed to average 100 feet, measured horizontally, on each side of the stream.

FW-087 **Buffer Prescription** - Develop a site-specific prescription to design the riparian leave area needed to produce the desired condition for each reach of stream adjacent to an area planned for management activities. Normally this riparian leave area will vary in width to fit on-the-ground conditions. The prescription will consider factors such as the number and location of trees and their probability of falling into the stream, the amount and condition of existing large woody debris and other components of fish habitat in the channel, valley floor configuration, threats to the integrity of the riparian area from adjacent activities, stream and watershed conditions elsewhere in the basin, and riparian enhancement and management opportunities.

FW-088 **Buffer Width** - Where conifers exist along Class I and II streams, leave a zone of such trees, averaging at least 10 per 100 feet of stream reach (about half on each side), that are likely to contribute large woody debris to the channel. (On the average, these conifers are assumed to be within 100 feet of the streams, measured horizontally.)

FW-089 **Buffer Width** - Where conifers exist along Class III streams, leave a zone of such trees, averaging at least 8 per 100 feet of stream reach (about half on each side), that are likely to contribute large woody debris to the channel. (On the average, these conifers that are most valuable for fish habitat are assumed to be within 60 feet of the streams, measured horizontally.)

FW-090 **Skyline Corridors** - If possible, skyline corridors needed to harvest adjacent lands should be 40 feet or less in width where they pass through riparian areas, and average at least 200 feet apart. Total clearing for corridors should not remove more than 20% of the canopy present prior to harvest in a given 1,000-foot reach of stream.

FW-091 **Buffer Integrity** - Assure that riparian objectives are met by including sufficient upland transition zones or by using practices such as stage felling, lining, and jacking to provide long-term integrity of riparian buffers.

FW-092 **Riparian Tree Cutting** - Except for necessary felling of cable corridors, harvest trees within streamside buffers only when necessary to protect or enhance riparian dependent resources, such as fish habitat, watershed conditions, and water quality.

FW-093 **Fish Habitat Management** - Manage the vegetation in the riparian area to assure a continuing supply of conifer trees as a source of large woody debris for stream structure to improve fish habitat. Management activities will vary according to the existing condition of streamside vegetation. Options will include preservation of existing vegetation; removal of hardwoods and planting conifers in their place (together with the associated activities to conduct these operations); selective felling of trees into the stream channel when existing large woody material levels are deficient; and placement of large woody material originally located outside of the area into the stream channel.

Range

FW-094 **Grazing Management** - Livestock grazing may be used as a tool to manage vegetation.

FW-095 **Noxious Weeds** - Control noxious weeds when necessary to meet state and county objectives, or to improve conditions or outputs of other resources (e.g. make more forage available for big game, reduce competition with trees). Noxious weed control will be coordinated with Oregon Department of Agriculture.

FW-096 **Riparian Protection** - Develop grazing systems to be compatible with riparian management goals.

FW-097 **Riparian Forage** - Limit grazing of preferred forage species in riparian areas to 35-50%.

FW-098 **Watering Facilities** - Where feasible, develop watering facilities away from stream courses to reduce the potential for bank disturbance and adverse effects on water quality.

FW-99 **Water Quality** - Livestock management practices will conform with State Recreational Water Quality Standards.

FW-100 **Soil Damage** - Prevent livestock grazing in areas with wet or saturated soils to prevent excess puddling or soil compaction and displacement of surface vegetation

Timber

(The following don't apply to Oregon Dunes NRA.)

FW-101 **Logging on Unsuitable Lands** - Vegetation management is a principal tool used to attain resource goals throughout the Forest. Unless stated otherwise in the MA S&Gs, trees may be cut or removed from land unsuitable for timber production for the following reasons, provided that the management direction for the area can still be achieved:

- Salvage trees or stands killed or substantially damaged by fire, windthrow, or other catastrophe;
- Control the spread of insect or disease outbreaks;
- Conduct research;
- Provide for the safety of Forest users (this includes hazard tree removal in camp and picnic grounds, in administrative sites, and along roads open to the public);
- Maintain or enhance fish and wildlife habitats;
- Improve the visual resource by opening scenic vistas or by improving visual variety;
- Construct new facilities such as roads, trails, administrative facilities, recreation facilities, and so forth.

FW-102 **Unit Size and Location** - Ensure that dispersion and maximum size of created openings (clearcuts) conform to R-6 Regional Guide (USDA Forest Service 1984a) Standard and Guidelines 2-1, 2-2, and 2-3, except as outlined in 2-1.

FW-103 **Utilization Standards** - Ensure that utilization standards conform with R-6 Regional Guide (USDA Forest Service 1984a) Standard and Guide 4-2.

FW-104 **Special Use Permits** - Ensure that timber sales are compatible with existing special use permits where significant permanent improvements have been made.

FW-105 **Oil and Gas Development** - Give oil and gas development priority over timber sales if irreconcilable conflict occurs.

FW-106 **Other S&Gs** - All other timber S&Gs are contained in MA 15.

Soil and Water

FW-107 **Soil Damage** - Do not allow the total acreage of all detrimental soil conditions, i.e., erosion, compaction, puddling, displacement, and severely burned soil, to exceed 15% of the total Forest land within the project area, including no more than 5-6% in landings and roads. Consider restoration if detrimental soil conditions approach 15% of the activity area.

FW-108 **Stability Assessment** - Assess the stability of all slopes and roads prior to implementation of ground-disturbing activities.

FW-109 **Site Productivity** - Retain sufficient ground vegetation and organic matter to maintain long-term surface soil stability and site productivity. Practices include preventing erosion (landslides, dry ravel, sheet and rill), hazard reduction, and site preparation on sensitive sites and result in maintenance of organic matter in the surface soil.

FW-110 **Organic Material** - Leave in place all un-utilized, standing or down woody material (larger than 20 inches in diameter at the small end, and any length) that does not either substantially interfere with reforestation or is an unacceptable fuel hazard. These materials are left to maintain long-term soil productivity following regeneration harvest, catastrophic salvage, and site preparation. The minimum amount to leave is 2 logs per acre having a volume of at least 40 cubic feet and 12 inches in diameter (Decay Class I or II), except in core areas managed for marten or pileated woodpecker where the minimum is 6 logs per acre (standing or down) greater than 20 inches in diameter and 20 feet long (as described in FW-081.)

FW-111 **Leave Areas for Safety** - Leave vegetation intact on slopes where root strength or other characteristics of that vegetation may be needed to prevent landslides which might hit an inhabited building.

FW-112 **Vegetation Leave Areas** - Leave all vegetation intact on slopes where root strength or other characteristics of that vegetation may be needed to prevent an increase in landslide occurrence, unless no significant direct or cumulative adverse effects on downslope resources or site productivity are anticipated as a result of the increased landslides.

FW-113 **Leave Area Protection** - Design logging and road construction in areas adjacent to vegetation leave areas to minimize the adverse effects of logging activities, broadcast burning, and wind on the leave areas.

FW-114 **Best Management Practices** - Comply with State requirements in accordance with the Clean Water Act for protection of waters of the State of Oregon (Oregon Administrative Rules, Chapter 340-41) through planning, application, and monitoring of Best Management Practices (BMPs) in conformance with Oregon's Forest Practices Rules (OAR Chapter 629-24) and Clean Water Act regulations and federal guidance issued thereto. The key beneficial uses which BMPs are designed to protect are fish habitat and water for domestic use.

FW-115 **BMP Process** - In cooperation with the State of Oregon, use the following process:

- Select and design BMPs based on site-specific conditions, technical, economic and institutional feasibility, and the water quality standards for those waters potentially impacted;
- Implement and enforce BMPs;
- Monitor to ensure that practices are correctly applied as designed;
- Monitor to determine the effectiveness of practices in meeting design expectations and in attaining water quality standards;
- Evaluate monitoring results and mitigate where necessary to minimize impacts from activities where BMPs do not perform as expected; and
- Adjust BMP design standards and application when it is found that beneficial uses are not being protected and water quality standards are not being achieved to the desired level. Evaluate the appropriateness of water quality criteria for reasonably assuring protection of beneficial uses. Consider recommending adjustment of water quality standards.

FW-116 **Water Quality Plan** - Use the existing approved process to implement the State Water Quality Management Plan on lands administered by the USFS as described in Memoranda of Understanding (MOU) between the Oregon Department of Environmental Quality and U.S. Department of Agriculture, Forest Service (2/12/79 and 12/7/82), and "Attachments A and B" referred to in this MOU (Implementation Plan for Water Quality Planning on NFS lands in the Pacific Northwest 12/78 and Best Management Practices for Range and Grazing Activities on Federal Lands, respectively).

For a more complete explanation of the above, refer to FEIS, Appendix J "Best Management Practices".

Individual, general BMPs are described in General Water Quality Best Management Practices, Pacific Northwest Region, 11/88. This provides guidance but is not a direction document. Also included in this document is a description of the process and limitations and use of these BMPs. Each BMP listed includes the Title, Objectives, Explanation, Implementation and Responsibility, and Monitoring. Evaluations of ability to implement and estimated effectiveness are made at the project level.

Not all of the general BMPs listed will normally apply to a given project, and there may be specific BMPs which are not represented by a general BMP in this document.

The sensitivity of the project determines whether site-specific BMP prescriptions are included in the EA/EIS, sale/project plan, or analysis files.

FW-117 **Water Quality** - BMPs are designed largely to protect fish and water for domestic use. The key water quality standards for the State are:

a. **Temperature Increases** - Use the following table to determine the maximum acceptable increase in temperature:

When stream temperature is:	Maximum increase allowed:
64 F or more	none
62 - 63.5 F	0.5 F
less than 62 F	2.0 F

b. **Turbidity Increases** - Do not allow more than a 10% increase in turbidity above natural or existing stream turbidity measured upstream from an activity causing turbidity.

FW-118 **Stream Shading** - Leave enough vegetation intact along perennial streams to limit solar heating of streams and maintain water temperatures within State water quality standards.

FW-119 **Hazardous Spill** - Take measures which will assure that downstream water users and residents are notified immediately in the event of a spill of hazardous material.

FW-120 **Protection from Chemicals** - Use measures which are effective in preventing chemicals (including fertilizer) from entering water and other areas not intended for treatment. Measures may include no-spray buffers and road closures for transport of chemicals.

FW-121 **Sanitation Facilities** - Provide sanitation facilities wherever human wastes would cause a hazard to human health.

FW-122 **Spill Plan** - Prevent disposal of petroleum products and hazardous materials on Forest lands. Follow the Forest's Hazardous Materials Spill Plan for control and cleanup of accidental spills of hazardous materials.

FW-123 **Channel Stability** - Design any structure which is in or near a stream to maintain stability of banks and to minimize surface erosion which may enter the stream.

FW-124 **Domestic Use** - When an activity proposed within a domestic-use watershed could measurably affect water quality or quantity, consider the needs of the water user in a site-specific environmental analysis under the NEPA process.

FW-125 **Instream Flows** - Protect instream flow on Forest lands through site-specific analysis of proposed water uses, diversions, and transmission applications in accordance with NEPA and renewal of permits. Protect instream flow needs by: filing protests with the State where applications are made that adversely affect National Forest resources; asserting claims for this water under federal or state laws where applicable; inserting protective measures into special use permits; and reaching formal agreements over use. Purchase of water rights and impoundments are other means for reducing impacts.

FW-126 **Floodplain Protection** - Plan, construct, and maintain all existing and proposed facilities and structures within floodplains so they comply with floodplain management directions found in the Forest Service Manual.

FW-127 **Stream Diversion** - When streamflow is temporarily diverted to accommodate construction or other activities, restore it to the natural course as soon as practical.

FW-128 **FERC Coordination** - Do not locate significant capital investment projects within FERC power withdrawls unless it would be practical to relocate them if the hydroelectric site is developed.

Municipal Watersheds

FW-129 **Environmental Analysis** - When an activity is proposed within a municipal watershed (see Glossary), conduct a site-specific environmental analysis under the NEPA process which considers the needs of the water users.

FW-130 **Cooperative Agreements** - In the Toledo and Corvallis municipal watersheds, assure that activities comply with the 1915 and 1922 Cooperative Agreements between the Secretary of Agriculture and the cities of Toledo and Corvallis, respectively.

FW-131 **Harvest Limitation** - Limit clearcut harvest acres to less than 15% of any municipal watershed within any 10-year period. (Doesn't apply to Oregon Dunes NRA.)

FW-132 **Special Practices** - Use herbicides only when other methods would not be effective. If herbicides are necessary, use only ground-based methods. Comply with mitigation measures in the Regional EIS, Managing Competing and Unwanted Vegetation (1988b).

Minerals and Geology

FW-133 **Surface Disturbance** - Manage mineral activities, including exploration, to minimize surface disturbance.

FW-134 **Withdrawal From Entry** - Consider withdrawing lands with permanent facilities, T&E species habitat, or designation as a Special Interest Area from mineral entry. Lands being recommended for withdrawal shall be examined to assess the effects on all resources, including minerals.

FW-135 **No Surface Occupancy** - Apply a "no surface occupancy" stipulation to leases only when (a) surface occupancy would cause significant resource disturbance which cannot be mitigated by any other means, (b) resource impacts would be irreversible or irretrievable, or (c) the activity is incompatible with surface management objectives.

FW-136 **Common Variety Minerals** - Provide common variety mineral material for roads, trails and other activities on Forest lands. Make common variety material available for off-Forest uses when it has been determined, through environmental analysis, that reserves exceed those necessary to meet projected Forest needs.

FW-137 **Common Variety Management** - Manage common variety mineral materials by lease, sale, or permit in accordance with the following criteria:

- Utilizes existing sources before developing new ones;
- Authorize activities on lands covered by other mineral leases or permits only when removal will not unduly interfere with the prior authorization; and
- Do not authorize exploration and development activities in areas where there would be conflict with other beneficial uses, such as riparian areas, special wildlife areas, and developed recreational or administrative sites.

FW-138 **Common Variety Removal** - Administer removal of common mineral materials on a sale or permit basis in areas where development does not conflict with other resource objectives. Process mineral material requests in accordance with procedures in 36 CFR 228, Subpart C. Proposed mineral material sources shall have a development plan.

FW-139 **Development Plans** - Include reasonable, operationally feasible provisions to protect riparian values and meet state water quality standards in plans for exploration and development of any type of mineral resource (leasable, locatable, and common variety).

Research

FW-140 **RNA Network** - In cooperation with PNW Research Station, identify biotic communities on the Forest which might represent unique ecosystems that qualify for the Research Natural Area network.

FW-141 **Cultural Resource Studies** - Provide selected cultural resource properties for scientific study of past human behavior, lifeways, economics, and adaptation.

Lands

FW-142 **Right-of-Way Applications** - When applications for rights-of-way for utilities are received, give first priority to utilization of residual capacity in existing corridors. (A map showing electronics sites and major utility corridors is on file at the Forest Supervisor's Office.)

FW-143 **Additional Corridors** - Designate any additional corridors for major utilities through an interagency environmental analysis, following procedures set forth in the Regional Guide. Amend the Forest Plan to include the newly designated corridor.

FW-144 **BPA Coordination** - Coordinate all new utility corridor requests with the Bonneville Power Administration. Limit right-of-way clearing for utility corridors to the extent necessary for safe and efficient use.

FW-145 **Protection of Raptors** - Design new power lines to avoid electrocution of raptors.

FW-146 **Subsurface Lines** - Bury new or reconstructed linear utility facilities unless environmental analysis indicates it would be unacceptable.

FW-147 **Road Grants** - Issue road rights-of-way grants to public road agencies for long term-use only as permanent easements.

FW-148 **Temporary Access** - Acquire temporary access for Forest Service activities when one-time entry is expected to access relatively small and/or isolated parcels.

FW-149 **Limited Access** - Do not acquire limited access for permanent rights-of-way unless either the public has alternative access to the parcel, or costs to acquire access outweigh public benefits.

FW-150 **Special Easements** - Acquire conservation or scenic easements rather than full ownership when objectives can be met and cost is substantially less than the cost of full ownership.

FW-151 **Electronics Management** - Manage sites designated for electronic use to maximize the number of compatible users while minimizing construction of individual buildings and facilities. Utilize existing site capacity before developing new sites when coverage is comparable. In addition,

- Develop site plans for existing sites with facilities in place; and
- Develop site plans for new sites prior to installation of facilities.

FW-152 **Letters of Authorization** - Use letters of authorization for occupancy and use of Forest lands when the use meets all the following criteria: temporary (less than 1 month), noncommercial, unadvertised, does not utilize public improvements, and does not draw public spectators. Under other circumstances, issue special use permits.

FW-153 **Land Acquisition** - Acquire and dispose of lands as prioritized in Appendix C.

FW-154 **Rights-of-Way** - Reserve rights-of-way needed for management on land sales and exchanges.

FW-155 **Land Exchange Restrictions** - Do not permit new activities on land where a land exchange statement of intent has been signed, unless consent of the proponent is obtained.

FW-156 **Trespass** - Identify and resolve occupancy trespass cases.

FW-157 **Small Tracts** - Identify and complete Small Tracts Act cases in a timely manner.

FW-158 **Monuments and Property Lines** - Locate and post survey monuments and property lines with the goal of completing the Forest by the end of the first decade.

FW-159 **Land Lines** - Locate and post all land lines needed for resource production before activity.

FW-160 **Maintenance** - Maintain corner monuments on a 10-year cycle. Survey property line conditions on a 10-year cycle and maintain lines, as needed, prior to management activities.

FW-161 **Permits** - Issue only those new permits which are compatible with management area objectives.

Transportation

FW-162 **Road Design** - Design and maintain roads to the minimum standard required for the safety of users, for current and future intended uses, and to meet all resource objectives for an area. Design roads to avoid wetlands and riparian zones wherever possible. Design necessary crossings to minimize adverse impacts to water and fish habitat and in no way inhibit fish passage.

FW-163 **Road Stability** - Construct and maintain roads and rock pits to minimize risk of landslides and erosion on the road surface.

FW-164 **Road Maintenance** - Maintain roads for low or high clearance use as indicated in the Road Management Objectives (RMOs). Following timber activities, open roads to high clearance vehicles for Forest visitor and administrative use, unless otherwise indicated in the RMOs. Maintain roads to developed sites to permit access by a variety of recreational and passenger vehicles (i.e., trucks with trailers, cars, motor homes).

FW-165 **Signs** - Install and maintain directional signs which facilitate travel through the Forest by recreational users. Correlate signing with Forest maps.

FW-166 **Sidecast Material** - Remove existing unstable road sidecast material that could cause landslides and subsequent adverse effects on downstream resources.

FW-167 **Appropriate Use** - Provide access for low-clearance, highway vehicles to developed recreation sites and a variety of points of interest within the Forest. Many roads will discourage low-clearance vehicles, and encourage high-clearance vehicles. Mark roads to indicate the appropriate use.

FW-168 **Road Management** - Combine transportation planning and road maintenance. Construct roads only when consistent with objectives for the management area. Ensure that each road has management objectives that provide a means to identify which maintenance standards and activities apply to the road. Update the Road Management Plan annually based on planning and monitoring.

FW-169 **Wildlife Restrictions** - When needed to limit wildlife harassment by reducing traffic volume, consider restricting roads open to motorized vehicles, except for those used for administration, permits, and contracts.

FW-170 **Closures** - When practical and consistent with other resource objectives, keep Forest roads open for public recreational use (Closures are shown in Appendix D).

FW-171 **Revegetation** - Revegetate all non-system roads constructed during the planning period within 10 years of completion of the contract, lease, or permit through which they were constructed.

Protection

FW-172 **Suppression** - Suppress all wildfires.

FW-173 **Aggressive Suppression** - Aggressively suppress wildfires that threaten life, property, public safety, improvements, or investments.

FW-174 **Escaped Fire Situation Analysis (EFSA)** - Complete an EFSA for fires that escape initial action or burn into the second burning period.

FW-175 **Economic Efficiency** - Prepare, implement, and maintain a fire management program that is cost effective. Determine this level of protection through the National Fire Management Analysis System. Use a Fire Management Action Plan to implement the fire management program.

FW-176 **Prescribed Fire** - Consider use of prescribed fire to meet management objectives in areas where ecological studies show that fire has played a significant role in ecosystem development. Use planned ignitions for all prescribed fires.

FW-177 **Project Assessment** - Address environmental effects of projects where prescribed fire is an alternative for the treatment of activity fuels (logging residue) or natural fuels.

FW-178 **Burning Plans** - Prepare burning plans in advance of ignition and get approval by the appropriate line officer for each prescribed fire. Burning plans will define an escaped fire. Declare a prescribed fire that escapes as a wildfire and prepare an EFSA.

FW-179 **Pest Management** - Use an Integrated Pest Management (IPM) approach, which recognizes pest management as an integral part of timber and other resource management, to prevent and reduce unacceptable pest-related damage. Under IPM, consider and analyze a full range of pest management alternatives, including cultural, biological, chemical, and mechanical methods, on a site-specific, project-level basis. Select specific treatment methods through an environmental analysis process which will consider environmental effects, treatment efficacy, and cost of each alternative on a case-by-case basis. Set up monitoring and enforcement plans to implement specific measures during this site- and project-specific analysis.

Air Quality

FW-180 **Air Quality Guidelines** - Meet air quality guidelines during all land management activities.

FW-181 **SIP** - Meet or exceed Oregon State Implementation Plan standards on all prescribed burns.

FW-182 **Future Emissions** - Assure that total smoke emissions on the Forest will meet, or are below, the emission standards set for the year 2000.

FW-183 **Rural Communities** - Give special attention to protecting high-use recreational areas and rural residential populations from exposure to smoke. Use all practical means of smoke management, including reduction, avoidance, and scheduling.

FW-184 **Emissions Plan** - Prepare an annual plan that lists the proposed burns for the year, the units that will have other treatments (including no treatment) in order to reduce total smoke emissions, and the number of acres included in timber sale planning which have prescribed burning as a method of fuels treatment. List the "best available technology" that will be used to reduce the emissions for all of units that are planned for prescribed burning.

Facilities

FW-185 **Management** - Plan, develop, maintain, and operate buildings, utility systems and related facilities for safe use, support of the Forest resource programs, and cost effectiveness.

FW-186 **Construction** - Assure that the construction of new buildings or additions to existing buildings and utility systems comply with the approved Forest Facilities Master Plan.

FW-187 **Administrative Facilities** - Provide and manage administrative facilities sufficient to accomplish land and resource management and protection objectives. Maintain the Forest Facilities Master Plan for all administrative sites. Consider long-term development and maintenance costs in planning for facilities.

FW-188 **Inspection** - Make a complete condition inspection, as suggested by prudent engineering practices and the Forest's Facility Management Plan, at least once every 5 years. Complete maintenance within 2 years of discovery of the need. Deferred maintenance items will be documented along with an analysis of anticipated damage to the structure. Give highest priority to historic structures like Heceta House and Hebo Lake Picnic Shelter.

Chapter IV
Implementation and Monitoring

CHAPTER IV

Implementation and Monitoring

Implementation of this Plan requires moving from an existing management program with a budget and targets for accomplishment to a new management program with a budget, goals, and objectives that will provide a different way of addressing the issues and concerns people have voiced about management of the NRA. This Plan establishes direction for the NRA for the next several years. It will be used in conjunction with the Siuslaw Forest Plan, Forest Service Manuals and Handbooks.

This chapter of the Plan includes three sections: Implementation Direction, Monitoring and Evaluation, and Amendments and Revisions. Collectively, these sections explain how management direction will be implemented, how implementation activities will be monitored and evaluated, and how this Plan will be kept current as conditions change and new information becomes available.

Implementation Direction

Implementation will occur through identification, selection, scheduling, and execution of projects and management practices designed to meet management direction of this Plan. Implementation will also involve responding to proposals by others for use and/or occupancy of national forest lands at the NRA. Additionally, it will be necessary for other plans or instruments, budget proposals, and environmental analysis required for implementation of specific management practices to be consistent with this Plan.

Project Scheduling

Appendix B lists proposed NRA projects. Multi-year project schedules will be prepared and maintained in response to management direction in this Plan as well as site-specific near-term needs and opportunities. Execution of these projects will respond to the annual budget. The projects listed in Appendix B provide a pool of activities from which implementation schedules will be developed in conjunction with available funding. The list of projects will change as projects are implemented and new projects take their place, as projects are removed from the list for other reasons, and as new project opportunities become evident.

Consistency With Other Instruments

This Plan in conjunction with the Forest Plan, serves as the land management plan for the Oregon Dunes NRA and upon implementation, will supersede all present land management and resource plans for the NRA.

Subject to valid existing rights, all outstanding and future permits, contracts, cooperative agreements, and other instruments for occupancy and use of NRA lands will be made consistent with this Plan. Existing instruments will be adjusted within 3 years of Plan approval.

Budget Proposals

Management activities scheduled in this Plan are associated with a multi-year program budget proposal that identifies funds necessary to implement it. This is then used to request and allocate funds. Outputs and activities in individual years may differ significantly from averages shown in Chapter II and Appendix B depending on available funds.

The Forest Supervisor may change proposed implementation schedules to reflect differences between proposed annual budgets and actual funds received. Such schedule changes shall be considered an amendment to this Plan and the Forest Plan, but shall not be considered a significant amendment, or require preparation of another EIS, unless the changes significantly alter the long-term relationships between levels of multiple-use goods and services projected under planned proposals as compared to those projected under actual appropriations.

Upon approval of a final budget for the Forest, an annual program of work at the NRA is adjusted to the final budget and then carried out. Annual programs of work result in incremental implementation of this Plan.

Environmental Analysis

Final decisions on site-specific projects intended to implement this Plan will be made after appropriate analysis and documentation meeting NEPA requirements. The form of documentation will be consistent with Council on Environmental Quality Regulations (40 CFR 1500-1508). NEPA documents in the form of Categorical Exclusions, Environmental Assessments, or Environmental Impact Statements will be filed and available for public review at NRA headquarters.

Monitoring and Evaluation

Monitoring and evaluation will provide the public, the Area Ranger, and the Forest Supervisor with information on progress and results of implementing this Plan. Actual effects and activities will be compared to projected effects and Plan direction. Where effects and activities are consistent with expectations, the determination will be documented and implementation will continue. Where effects and activities are not consistent with expectations, appropriate action (based on further evaluation) will be taken to correct inadequacies or to modify this Plan where necessary.

Overall objectives of monitoring are to determine if programs and projects are meeting Plan direction, and to keep this Plan viable. Monitoring questions for the NRA are comprised of both Forest Plan (FP) questions and others specific to the NRA.

Specific objectives of monitoring and evaluation are to determine whether:

- Planned goals and objectives are achieved.
- Programs and activities address existing and emerging public issues and management concerns.
- Standards and guidelines (S&Gs) are being followed.
- S&Gs are producing desired results.
- Resource and cost information used in projecting outputs and impacts are correct.
- The Plan needs to be amended or revised.

Monitoring

Monitoring will test the effectiveness of this Plan in improving the situations represented in the planning ICOs. For primary ICOs that alternatives were designed around, there are one or more monitoring questions which will be answered at specific time intervals. Tables included in the next section of this chapter list these monitoring questions by resource. The questions will provide a periodic comparison of end results of implementation and those projected in this Plan.

Costs, outputs, and environmental effects will be compared to measure effectiveness of implemention of S&Gs (Chapter III) and to determine if relationships on which this Plan is based are still valid. Differences will be evaluated and appropriate action taken, which could range from correcting performance deficiencies when S&Gs are not being implemented, to amending or revising the Forest Plan when acceptable effects can not be achieved within the present framework of this Plan.

While monitoring questions are designed to be clear about what outcome is being tested, they are purposely phrased to allow flexibility in sampling procedures. This will allow personnel to design monitoring activities in response to special management concerns at the time of sampling, and to current developments in sampling and analysis procedures.

Three types of monitoring will be used:

- Implementation Monitoring: Did we do what we said we would do in this Plan for a given issue?

- Effectiveness Monitoring: Did the practice or activity provide what we wanted?

- Validation Monitoring: Are basic assumptions about cause/effect relationships accurate?

The Monitoring Plan contains the following elements which are included in Table IV-1:

General Monitoring Question - Major questions that need attention to determine if the Plan is working as expected. The "Discussion" part of this element elaborates on major pertinent components of the general issue the question is addressing.

Evaluation Question - A question that deals with a facet of, and helps answer the general monitoring question. These include Plan assumptions and indicator items that, when considered in total, help answer the general monitoring question.

Action/Effect to be Measured - Specific statement of what will be examined.

Methods - Process by which the examination will be done.

Units of Measure - Self explanatory.

Expected Reliability - Level of validity and exactness of the data. Reliability is the expected probability that information acquired through sampling will reflect actual conditions. Reliability is rated as high, moderate, or low.

Information Collection Frequency - Specifies minimum collection intervals expressed as given time periods.

Monitoring Reporting Period - Minimum time interval for reporting.

Management Responsibility - Person who has responsibility for compilation of information at the Forest level (in the case of Forest-wide S&Gs) or NRA level (in the case of Dunes-specific S&Gs). Data will generally be collected by the NRA staff.

Variability Indicating Further Action - Threshold that triggers a reevaluation of this Plan.

Estimated Cost - The approximate annual cost of accomplishing the monitoring tasks.

Table IV-1. Monitoring Questions - Cultural Resources.

QUESTION: Are cultural and historical sites being used and protected as planned?

Discussion - Federal laws and regulations require protection of significant cultural and historical resources. Monitoring provides a check on how well the Forest is maintaining cultural resource sites and meeting the intent of the regulations.

Cultural resource inventories will be conducted for proposed ground-disturbing activities. Sites will be evaluated for their potential to be nominated to the National Register of Historic Places. Eligible sites will be nominated to the Register and management plans prepared to ensure their protection, including regularly scheduled monitoring of site condition. Ineligible sites will be evaluated for their potential research or interpretive values. Sites with research potential will be made available to qualified scientists. Interpretive plans will be prepared for sites selected for public use.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Is a complete structural inspection of historic structures and necessary repairs being made?	Comprehensive report of condition of all significant structures	Field visit to all significant and unevaluated sites and inventory of condition	Compare condition to NHRP guidelines	High	Every 5 years	Years/5	Recreation Staff	Inspections not completed	$2,000
(FP) Is appropriate stabilization or rehabilitation of damaged or eroded sites eligible for inclusion in the National Register of Historic Places (NHRP) being done?	Report of damaged significant sites with recommendations for repair and rehabilitation	Field review damage repair	Compare to NRHP guidelines	High	Annual	3, 6, and 9 years	Recreation Staff	Damage which threatens loss of values not repaired	$2,000
(FP) Are cultural resource surveys being performed according to the Forest/SHPO agreement?	Report based on annual monitoring of significant sites in project areas and also of unevaluated sites	Field surveys	Completed survey	High	Annual	3, 6, and 9 years	Recreation Staff	Report not completed	$3,000

Table IV-2A. Monitoring Questions - Economics (Funds)

QUESTION: Are funds available to conduct planned monitoring activities?

Discussion - The Forest Plan Standards and Guidelines provide an specific resource management direction for the Forest to meet Plan objectives. Ensuring implementation of the Plan requires increased monitoring activities. Inability to conduct adequate monitoring would violate NFMA.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are funds available to conduct monitoring activities?	Monitoring costs	Budget reports	Dollars	High	Annual	Annual and as needed	Planning Staff	Insufficient funds	$500

Table IV-2B. Monitoring Questions - Economic and Social

QUESTION: Are economic and social assumptions, values, and projections valid?

Discussion - Economic values were based on historical data. The value of many of the Forest's outputs are determined by trends in public preferences. Changes in timber availability, markets and technology could have significant effects on several economic variables. There is also an opportunity to begin collecting baseline data for future planning efforts.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Do the 3-year average annual payments to each county meet projections?	Payments to counties	Forest records	Dollars	High	Annual	Annual	Planning Staff	Deviations from projections exceed 10% over 3-year average	$100
(FP) Do the average annual receipts and product prices conform to predictions?	Annual receipts	Revenue reports	Dollars	High	Annual	Annual	Planning Staff	Deviations from expected values exceed 10% over 3 years	$500
(FP) Do the average measures of local employment and income rates meet projections?	Local employment and income rates	State Employment/ Income Statistics	Percent unemployment and income rates	High	5 years	Annual	Planning Staff	Deviations from projections exceed 20% over 5 years	$500
(FP) Do total costs by resource activity and major project costs conform with predictions?	Total costs	Budget reports	Dollars	High	Annual	Annual	Planning Staff	Deviations from expected values exceed 10% over 3 years.	$500

Table IV-2B Cont. Monitoring Questions - Economic and Social

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Has there been a significant change in public attitudes, beliefs or values.	Various	Interviews with key publics and opinion leaders in communities, media reports, editorials, etc.	Various	Low	Continuous	Annual	Planning Staff	Trend toward Forest - community conflict or new social problems identified.	$500

Table IV-3. Monitoring Questions - Fish

QUESTION: Are desired habitat and populations of fish and opportunities for fishing being provided?

Discussion - Cover and food resources in lakes are the primary factors determining quality of fish habitat on the Oregon Dunes NRA. Quality and quantity of fish habitat is expected to increase slightly, largely because of habitat enhancement activities. Healthy riparian zones are critical and riparian management is strongly reflected in quality of fish habitat. Standards and guidelines are needed to assure that management actions lead to the desired condition of fish habitat and fishing opportunities.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are planned projects and program targets for fish being accomplished?	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annual	Planning Staff	Accomplish-ments are more than 10% below Plan targets over 3 years.	$300
Is fish habitat being maintained and enhanced?	Amount of habi-tat in streams. Lake conditions.	R6 Standard Level II stream survey and R6 standard lake surveys	Various parame-ters	Moderate	Every 5 years	Every 5 years	Fisheries staff	Evidence of decline in fish habitat for two successive surveys	$15,000/ year
Are anadromous fish stocks of concern being maintained?	Keep popula-tions from being listed as T&E.	Monitor adult spawner counts, catch records, and other esti-mates made by ODFW.	Number of fish	Moderate	Annual	Annual	Fisheries Staff	Listing of stock as T&E or localized decline	$300/year

Table IV-3 Cont. Monitoring Questions - Fish

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are related standards and guidelines implemented?	Compliance with management direction	Office and field review of project plans and EA reports potentially or directly affecting the fishery resource	N/A	High	Continual and ongoing	every 2 years	Fisheries Staff	A "no" to the question, "Were S&Gs implemented?"	$3,000/ year
Is the desired amount and type of fishing taking place? (see Recreation Diversity section)									

Table IV-4A. Monitoring Questions - Recreation and Scenery (Recreation Diversity)

QUESTION: Is the diversity of recreation opportunities provided for in the plan being supplied and consumed?

Discussion - A broad spectrum of outdoor recreation opportunities are supplied in order to meet projected consumption. It is necessary to confirm that the projected consumption is actually occurring in order to be sure that the right types and amounts of opportunities are being supplied.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are planned projects and program targets being accomplished.	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annual	Forest Staff	Accomplishments are more than 10% below Plan targets over 3 years.	$200
(FP) Is the management of the following areas consistent with the assigned ROS or WROS class and the other direction in the Forest Plan? Wilderness Oregon Dunes NRA Cascade Head SRA Special Interest Areas Undeveloped Areas Sutton Sand Lake Developed Recreation Sites	Deviation from ROS or WROS class standards	Field review of management areas and developed sites	ROS or WROS setting indicators	High	Annually - one-third of sites and areas	3, 6, and 9 years	Recreation Staff	Any deviation from planned or anticipated setting indicators	$3,000
(FP) Is the amount and type of recreation use taking place in the various areas of the Forest as predicted in the Forest Plan?	Amount of recreation use by activity by area	RIM use reports	RVDs	Low	Annual	Annual	Recreation Staff	Deviation greater than 50%	$1,500

Table IV-4A Cont. Monitoring Questions - Recreation and Scenery (Recreation Diversity)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are the facilities and improvements scheduled in the Forest Plan being provided as needed?	Construction and reconstruction of improvements	Look for overuse or compare practical capacity of facilities with demand using market studies	Predicted RVDs in excess of practical capacity	Moderate	Annual	3, 6, and 9 years	Recreation Staff	Persistent signs of overuse or market studies which show demand about to exceed capacity	$3,000
Are NRA recreation projects being constructed and managed to meet other resource considerations?	Improvement construction and management	Look for compliance with following S&Gs: AW-8, 10, 13, 14, 15, 16; A-6; B-3; C-8, 12; F-4, 5; G-2, 4, 6.	Applicable S&Gs met/not met	Moderate	Annual	3, 6, and 9 years	Recreation Staff	More than 10% of applicable S&Gs are not being met	$1,000
Has vegetation treatment been used to maintain or enhance recreation opportunities in the areas identified on the vegetation management priority map?	Project output	Review of completed projects	Number of projects	High	Every 3 years	3, 6, and 9 years	Recreation Staff	No projects completed by year 6	$100

Table IV-4B. Monitoring Questions - Recreation and Scenery (Off-road Vehicles)

QUESTION: Is off-road use of vehicles taking place as intended in the Forest Plan?

Discussion - Monitoring off-road use of vehicles is required in 36 CFR Part 295 in order to determine if such use is causing or will cause considerable adverse effects on soil, water, fish, wildlife, forest visitors, and cultural and historic resources.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Is off-road use of vehicles confined to the areas designated for such use in the Forest Plan?	Violation of vehical closures and restrictions	Record field observation of areas closed or restricted	Number and severity of violations	Moderate	As violations are observed plus sample closed areas four times per year	Annual	Recreation Staff	More than 150 recorded violations in one year, Forest-wide	$3,000
Is off-road use of vehicles complying with designated route requirements?	Revegetation of non-designated routes	Record field observation of route non-compliance and sample abandoned routes	Number of violations; evidence of use on abandoned routes; % vegetation cover on abandoned routes	High	As violations are observed plus sample undesignated routes four times per year	Annual	Recreation Staff	Annual violations or evidence of violations more than 150 (yr 1), 100 (yr 2), 50 (yr 3 and thereafter); static or downward trend in % vegetative cover	$2,000
Is off-road use of vehicles complying with curfews in applicable areas?	Violation of applicable curfew hours	Record field observation of non-compliance and sample curfew areas	Number of violations	High	As violations are observed plus sample each curfew area four times (12 hrs) per year	Annual	Recreation Staff	Annual violations more than 150 in yr 1; 100n yr 2; 50 in yr 3 and thereafter	$2,000

Table IV-4B Cont. Monitoring Questions - Recreation and Scenery (Off-road Vehicles)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is motorized dispersed camping complying with permitted designated-site system?	Violation of permit requirements; naturalization of abandoned campsites	Record field observation of noncompliance and sample abandoned campsites	Number of violations; % bare/ disturbed soil in abandoned sites; other evidence of camp use (fire-ring, trash, etc.)	High	As violations are observed plus sample abandoned campsites four times per year	Annual	Recreation Staff	Less than 80% permit compliance; static/ upward trend in % bare soil and evidence of use in abandoned camps	$2,000
Is off-road use of vehicles complying with closure and noise-control buffer requirements?	Violation of closures or buffer	Record field observation of noncompliance and sample closures and buffer	Number of violations; evidence of closure violations (tracks)	High	As violations are observed plus sample closure areas and buffer four times per year	Annual	Recreation Staff	More than 150 violations in yr 1; 100 in yr 2; 75 in year 3; 30 in yr 4 and thereafter	$1,000
(FP) Are the effects of off-road use of vehicles within acceptable limits?	Effects of off-road use of vehicles	Record field observations of effects where off-road use of vehicles is allowed	Amount of environmental disturbance	Moderate	As effects are observed plus sample open areas four times per year	Annual	Recreation Staff	Disturbance by off-road vehicles exceeds acceptable limits.	$3,000

Table IV-4B Cont. Monitoring Questions - Recreation and Scenery (Off-road Vehicles)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are off road vehicles meeting applicable noise emission standards?	Decibel output of individual machines	Record field observations of noncompliance and perform courtesy sound checks	Decibels	Moderate	As effects are observed plus courtesy sound checks during high use season	Annual	Recreation Staff	Noncompliance in sample exceeds 20% in yr 1; 10% in yr 2; 5% in yr 3 and thereafter	$40,000

Table IV-4C. Monitoring Questions - Recreation and Scenery (Visual Resource)

QUESTION: Is the quality of the visual resource being provided as directed in the Forest Plan?

Discussion - To provide visually attractive landscapes for Forest visitors, and also carry on resource management activities, visual quality objectives (VQOs) are established in the Forest Plan. Monitoring whether activities meet the VQOs individually and cumulatively determines how well the visual resource is being protected.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Do the visual results of activities meet the VQOs assigned in the Forest Plan?	Visual effects of landscape changing projects	Field review of finished projects	VQO criteria	High	Annually sample projects on each District	3, 6, and 9 years	Recreation Staff	Greater than 10% of projects not meeting VQOs	$1,500
(FP) Do the cumulative effects of resource activities stay within predicted Overall Viewshed Conditions?	Extent of visual effects in a total viewshed	Field inventory of overall viewshed condition	Summary Viewshed Rating categories	Moderate	Every 5 years	5 and 10 years	Recreation Staff	Any viewshed not meeting the predicted viewshed condition	$1,000
Has vegetation treatment been used to maintain or enhance visual quality in the areas identified on the vegetation management priority map?	Project output	Review of completed projects	Number of projects	High	Every 3 years	3, 6, and 9 years	Recreation Staff	No projects completed by year 6	$100

Table IV-5. Monitoring Questions - Interpretation

QUESTION: Is the program interpreting the natural environment and/or management activities at designated sites?

Discussion - Interpretation helps visitors understand and appreciate the Oregon Dunes NRA and encourages thoughtful use of the area while minimzing human impacts on resources. It also promotes understanding of the goals and objectives for the NRA.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Was an interpretive strategy completed?	Interpretive strategy	Management Team review	Docu-ment	High	Continuous	Within 2 years of Dunes Plan completion	Public Affairs Staff	A "no" answer to the question of whether the strategy is completed.	$50
Are related standards and guidelines implemented?	Project output	Management Team review	NA	High	Ongoing	Annual	Public Affairs Staff	A "no" to the question of whether the S&Gs were implemented	$50

Table IV-6. Monitoring Questions - Research Natural Areas

QUESTION: Are potential RNAs being studied for formal designation and being managed as predicted?

Discussion - RNAs are physical or biological units in which current natural conditions are maintained as much as possible. Each RNA contains at least one ecosystem identified as a necessary part of a national system of preserved ecosystems. Potential RNAs must be studied in more detail to determine if environmental conditions truly qualify for the system. At the same time, management activities must protect the special natural qualities of the area.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are establishment records for each Research Natural Area complete, and adequate to achieve the goals of Management Area 10(K)?	Establishment records	Interdisciplinary review	Number and quality of reports	High	Annual	Every 2 years	Ecology Staff	Any records not completed within 3 years of approval of Plan	$500
(FP) Are standards and guidelines related to Research Natural Areas implemented?	Compliance with management direction	Interdisciplinary field review	N/A	High	Annual	3 and 8 years	Ecology Staff	A "no" to the question, "Were S&Gs implemented?"	$625

Table IV-7A. Monitoring Questions - Soil and Water (Soil Productivity)

QUESTION: Is long term soil productivity being maintained as predicted?

Discussion - Soil organic matter is critical for maintenance of long term soil productivity. It is the primary medium for organic nutrient cycling; it is the host site for soil microbes and mycorrhiza; it moderates soil temperatures; and it influences soil water conditions. Management practices that affect the amount of soil organic matter ultimately affect the basic productivity of the site. Monitoring of soil organic matter will provide information about the direct and cumulative effects of management activities on soil productivity.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are planned projects and program targets being accomplished.	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annual	Planning Staff	Accomplishments are more than 10% below Plan targets over 3 years.	$225
(FP) Are standards and guidelines relating to soil productivity implemented?	See list of standards and guidelines	Sample one project per year	N/A	High	Ongoing	Annual	Watershed Staff	A "no" to the question "were the S&Gs implemented?"	Included in fish monitoring

Table IV-7B. Monitoring Questions - Soil and Water (Water Quality)

QUESTION: Is the water quality of lakes and streams being maintained as predicted?

Discussion - Activities such as building roads and facilities adjacent to lakes and streams can affect water quality. Primary causes of these potential affects are toxic spills, sanitation problems and sedimentation from surface erosion. Surface and ground water are used as domestic and industrial water supplies and as habitat for a variety of fish and other aquatic species. The condition of sensitive riparian areas is reflected by the quality of water in the lakes and streams they surround. Assessment of the water quality will help us understand the cumulative effects of our activities.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the following water quality parameters within limits established by state water quality standards: turbidity, temperature, hazardous chemicals, human disease organisms?	Turbidity, temperature, pesticides and other hazardous chemicals, human disease organisms	Sample two streams per year. Use streams providing domestic water where feasible. Use herbicide and fertilization monitoring results. Grab samples for turbidity. Ryan Thermagraphs for temperature. State Agriculture lab for chemicals.	NTUS turbidity, °F temperature, ppm/ppb (pesticides) and other chemicals	Low	2, 4, 6, 8, years and after 10-year storm event	2, 4, 6, 8 or after 10-year or larger flood event	Watershed Staff	15% of samples exceed state standard for a given parameter	$2,000 to establish; $5000/year
(FP) Are standards and guidelines related to watershed management implemented?	See list of standards and guidelines	Sample one site per year.	N/A	High	Ongoing	Annual	Watershed Staff	A "no" to the question "Were S&Gs implemented?"	Included in fish monitoring costs
Are water levels being maintained on the Oregon Dunes NRA?	Surface and groundwater levels	Monitoring by Coos Bay-North Bend Water Board	Gauge units	Moderate	Monthly	Annual	Watershed Staff	Evidence of long-term decline	$200 to compile information from Water Board

Table IV-8. Monitoring Questions - Vegetation Management

QUESTION: Is the vegetation management program on the Oregon Dunes NRA meeting intended objectives?

Discussion - Development of a vegetation management program is a major issue with most people interested in management of the Oregon Dunes NRA. The strategy outlined in this plan was developed to address a wide range of resource objectives. The following monitoring questions will provide information to assess program development.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are vegetation management projects being accomplished?	Project output	MARs (existing reports)	Acres	High	Annual	Annual	Earth and Biological Resources Staff	Accomplishment more than 10% below planned targets over a 3 year period.	$50
Are successful vegetation management methods being developed for European beachgrass?	European beachgrass control	Transect surveys	% live cover	High	Annual	Annual	Earth and Biological Resources	More than 10% of pre-project live cover of targeted control species, two years after treatment.	$3000
Are site specific monitoring plans developed and implemented on all vegetation management projects?	Monitoring plan	Review	Monitoring plan	High	Annual	Annual	Earth and Biological Resources Staff	A "no" to the question "were monitoring plans developed and implemented".	$50

Table IV-8 Cont. Monitoring Questions - Vegetation Management

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are all vegetation management resource objectives addressed/ accomplished within project areas?	Project planning/ accomplishment	Project review	Objec-tives met/not met	Moderate	Annual	Annual	Earth and Bio-logical Resourc-es staff	A "no" to the question "were all vegetation management objectives addressed.	$800
Are all standards and guidelines applicable to vegetation manage-ment being implemented?	Standards and Guidelines	Review 1 project per year	S&Gs met/not met	High	Annual	Annual	Earth and Bio-logical Resourc-es Staff	A "no" to the question "were S&Gs imple-mented?"	$3000

Table IV-9A. Monitoring Questions - Wildlife (Aleutian Canada Goose and Brown Pelican)

QUESTION: Are recovery plan objectives being met for Aleutian Canada geese and brown pelicans on the Oregon Dunes NRA?

Discussion - Aleutian Canada geese are listed as Threatened by the USFWS and require special protection. This species migrates south from Alaska, with some flocks wintering on the Oregon coast, feeding in coastal estuaries and agricultural pastureland. They roost on the off shore islands. With waterfowl enhancement programs in the Oregon Dunes NRA, Aleutian Canada geese should be watched for, and protected if found. Brown pelicans are listed as Threatened by the USFWS and require special protection. This species moves north, along the coast, from California during its post breeding dispersal. It occupies sites on the off shore islands and occasionally on the main coast during the late summer and fall. Suitable habitat exists on the along estuaries and beaches.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Have suitable habitat sites been identified on the Forest and management plans been written for them?	Habitat availability	Survey, ODFW survey, if available	Acres	Moderate	5 years	5 years	Wildlife Staff	Suitable habitat sites are not identified and management plans are not written	$300/ year
(FP) Is suitable habitat for either Aleutian Canada geese or brown pelicans being maintained or increasing on the Siuslaw National Forest?	Habitat availability	Field Survey	Acres	Moderate	2 years	2 years	Wildlife Staff	Any habitat loss from 1991 levels	$200/ year
(FP) Have suitable habitat sites been surveyed to determine use by Aleutian Canada geese or brown pelicans and has protection been provided when use is established?	Goose use, Pelican use	Field Survey, FWS Flight survey data when available	Birds	High for goose, moderate for pelican	Annual	Annual	Wildlife Staff	Any occupied sites not protected	$300/ year

Table IV-9A Cont. Monitoring Questions - Wildlife (Aleutian Canada Goose and Brown Pelican)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are planned projects and program targets for management of these species being accomplished?	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annual	Wildlife Staff	Accomplishments are more than 10% below Plan targets over 3 years	$50

Table IV-9B. Monitoring Questions - Wildlife (Bald Eagle)

QUESTION: Are bald eagle recovery plan objectives being maintained on the Oregon Dunes NRA?

Discussion - The bald eagle is listed as Threatened by the USFWS for the state of Oregon and requires special management under the Pacific States Bald Eagle Recovery Plan. The bald eagle population on the SNF is dispersed and nonmigratory, and is augmented with scattered migratory birds during the winter. Due to the dispersed food source (primarily fish) in the Coast Range, no communal winter roost sites have been found. Known nest sites and potential sites require protection. Currently, there are no known nest sites on the NRA.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are all known and identified potential bald eagle nest sites protected in accordance with the Recovery Plan and Forest Plan standards and guidelines?	Acres of land set aside in each management site.	Field Survey	Acres	High	2 years	2 years	Wildlife Staff	Any site not protected	$600/ year
(FP) Has an interagency management plan for each known and potential nest site been written?	Management Plan	Review	Management Plan	High	Annual	Annual	Wildlife Staff	Less than 4 management plans completed each year	$150/year
(FP) Has a management plan for each newly discovered nest site been written?	Management Plan	Review	Management Plan	High	Annual	Annual	Wildlife Staff	A "no" response to monitoring question	$50/year
(FP) Are Standards and Guidelines applied to all activities that might affect nest sites?	S & G Compliance	Project Review	N/A	High	As needed	Annual	Wildlife Staff	A "no" to the question "Were S&Gs implemented?"	$700/year

Table IV-9B Cont. Monitoring Questions - Wildlife (Bald Eagle)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are bald eagle numbers being maintained or increasing on the SNF?	Population levels	Planned and random surveys	Eagles	Moderate	Annual	Annual	Wildlife Staff	A decline in population over 5 year running average	$100/year
(FP) Are nest sites producing young as anticipated?	Reproduction	Interagency nest site monitoring program	Eagles fledged	Moderate	Annual	Annual	Wildlife Staff	A decline in productivity over a 5 year running average	$50/year
(FP) Are bald eagle numbers being maintained or increasing on the SNF?	Population levels	Planned and random surveys	Eagles	Moderate	Annual	Annual	Wildlife Staff	A decline in population over 5 year running average	$100/year
(FP) Are planned projects and program targets for management of eagles being accomplished?	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annual	Wildlife Staff	Accomplishments are less than 90% of Plan targets	$50/year

Table IV-9C. Monitoring Questions - Wildlife (Snowy Plover)

QUESTION: Are populations of snowy plover being sustained on the Oregon Dunes NRA?

Discussion - The snowy plover is currently listed by the Forest Service as Sensitive, the Oregon Department of Fish and Wildlife as Threatened, and the US Fish and Wildlife Service as a threatened species. Snowy plovers nest on the sand beaches in front of the foredune and above the high water mark. The area the birds utilize is popular for a variety of human activities and results in management conflicts. The population of snowy plovers is small and concentrated, making it susceptible to catastrophic loss. The plover nests, forages, and winters in sandy areas virtually devoid of vegetation, driftwood, and other structure near salt or brackish waters of the ocean and bays. On the NRA these areas are located above high tide on sandy spits associated with small estuaries as streams enter the ocean. The primary management concern is with nesting habitat.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Is the amount of suitable nesting habitat, as determined by state-of-the-art research, increasing or decreasing on the NRA?	Habitat Quality	Literature search, Field surveys	Acres	High	2 years	4 years	Wildlife Staff	A 10% decline in the acres of suitable habitat from 1991 levels	$2000/ year
(FP) Are the related Standards and Guidelines being implemented on all projects that might impact snowy plover populations (including both capable and suitable habitat)?	S & G Compliance	IDT field review	N/A	High	By project	Annual	Wildlife Staff	A "no" to the question "Were S&Gs implemented?"	$800/year
(FP) Are populations of the snowy plovers increasing or decreasing?	Population changes	ODFW Shorebird Survey, if available.	Birds	High	Winter survey, nesting survey	Annual	Wildlife Staff	25% decline in the population over 3 years, compared to the previous 3 year average	$600/ year

Table IV-9C Cont. Monitoring Questions - Wildlife (Snowy Plover)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are planned projects and program targets for management of plovers being accomplished.	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annual	Wildlife Staff	Accomplish-ments are more than 10% below Plan targets over 3 years	$100
Are habitat creation sites being utilized by nesting snowy plovers?	Nesting activity	Field survey	Nesting birds	High	Annual	Annual	Wildlife Staff	No use within 5 years of completion	$2000/year
Are the related standards and guidelines being implemented in Snowy Plover Management Areas and newly discovered nesting areas?	Standard and guideline compliance	Compliance with AW 1, 12-14, 17 &28, E 1-10, FW 58-64	Standard and guideline compli-ance	Moderate	Annual	Annual	Wildlife Staff	A "no" to question "were S&Gs imple-mented?"	$1000/ year
Are Standards and Guidelines and habitat enhancement projects resulting in increased snowy plover reproductive success?	Increased nest-ing success	Field survey	Nesting birds	Moderate	Annual	Annual	Wildlife Staff	Static or downward population trend	$10,000/year

Table IV-9D. Monitoring Questions - Habitat Diversity (Wetlands)

QUESTION: Are wetland habitats being maintained or enhanced to provide for habitat diversity on the NRA?

Discussion - A variety of wetlands are found on the Oregon Dunes NRA including deflation plain wetlands, salt marsh, meadows and riparian. These wetlands fulfill important ecological functions while providing important habitat to a variety of species.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is wetland habitat being maintained on the NRA?	Acres of wetlands	Aerial and field surveys	Acres	Moderate	5 years	5 years	Wildlife Staff	Any net loss of wetland habitat	$2500/year
Are habitat enhancement projects providing for creation or maintenance of a proportion of wetlands in an early seral stage?	Project output	Review	Acres	Moderate	3 years	3, 6 and 9 years	Wildlife Staff	No projects completed by year 6	$500/ year
Are designated routes being maintained to avoid draining of wetlands?	Designated routes below soil surface level	Field review	Inches	High	Quarterly	Annual	Wildlife Staff	Ruts greater than 6 inches	$1000/year
Have meadow management strategies for Butterfield and Lodgepole meadows been written?	Document	N/A	Document	High	Once	2 year after plan release	Wildlife Staff	No documents	$50

Table IV-9E. Monitoring Questions - Habitat Diversity (Special Habitats and Sensitive Species)

QUESTION: Are special habitats and sensitive species being protected, maintained or enhanced on the Oregon Dunes NRA?

Discussion - The Dunes Plan provides for enhancement or maintenance of diverse habitats across the NRA through habitat enhancement projects and protection. Special habitats include meadows, marshes, wetlands, estuaries, lakes, ponds and breeding sites. Sensitive species are those listed by Region 6. These habitats and species contribute to the overall biological diversity of the NRA.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are special habitats being protected, maintained and/or enhanced as required by standards and guidelines?	Standard and guideline compliance, project output	Field review	Habitat condition	Moderate	5 years	5 years	Wildlife Staff	Any degradation of special habitats	$2000/ year
Are sensitive species and associated habitats being maintained to prevent potential federal listing?	Prevent listing, habitat condition	Field surveys	Species presence, acres/ condition	Low	2 years	2 years	Wildlife Staff	Any apparent decline in population, more than 10% loss of habitat	$2000/ year

Table IV-9F. Monitoring Questions - Habitat Diversity (TE&S Plants)

QUESTION: Are viable populations of all Threatened, Endangered and Sensitive plants being maintained on the Siuslaw National Forest?

Discussion - There are presently no known Threatened or Endangered plants located on the SNF. Several species listed as Sensitive on the Regional Forester's list occur on the Forest and require special protection. All management activities that affect habitat that could contain TE&S plants must be surveyed for their presence.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
(FP) Are all protected populations of TE&S plants surviving under present management policies?	Population survival	Field surveys of protected stands	Plant pop. #	High	Annual	Annual	Wildlife Staff	10% drop in numbers of protected populations	$2000/ year
(FP) Are all Standards and Guidelines that apply to TE&S plant populations being implemented as required?	S & G compliance	Records Review	N/A	High	By project	Annual	Wildlife Staff	A "no" to the question "Were S&Gs implemented?"	$50
(FP) Has an interagency management plan for each protected population site been written?	Management Plan	Review	Management Plan	High	Annual	Annual	Wildlife Staff	At least one species management plan written each year.	$50
(FP) Are planned projects and program targets for management of TE&S plants being accomplished.	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annual	Wildlife Staff	Accomplishments are more than 10% below Plan targets over 3 years.	$50

Table IV-9G. Monitoring Questions - Habitat Diversity (Globally Significant Plant Communities)

QUESTION: Are globally significant communities maintained as representative plant associations on the Oregon Dunes NRA?

Discussion - The Oregon Dunes NRA contains a number of plant communities which are rare on a global scale. The highest quality examples of each of these plant communities will be maintained as representative plant associations. Active management may be necessary to maintain or increase their quality by controlling invasive non-native vegetation and restoring disturbed sites.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are globally significant plant communities in Management Area 10F maintained in good to excellent condition?	Plant community quality	Field survey	Plant community condition	Moderate	One third of globally significant plant communities annually	Annual	Wildlife Staff	Any decline in plant community condition over a three year perio	$1200/ year
Are the related Standards and Guidelines being implemented?	Standards and Guidelines Compliance	Review	S&Gs met/not met	High	Annually	Annual	Wildlife Staff	A "no" to the question "Were S&Gs implemented?"	$50/ yr.

Table IV-10. Monitoring Questions - Wild and Scenic Rivers

QUESTION: Are the important attributes of streams recommended for inclusion in the Wild and Scenic River system being protected?

Discussion - Tenmile Creek and Tahkenitch Creek have been recommended for inclusion in the Wild and Scenic River system at the scenic and wild classification respectively. Until a final decision is made their eligibility, outstandingly remarkable values (ORVs), and classification levels must be maintained as they existed at the time of recommendation

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the eligibility and outstandingly remarkable values being maintained or enhanced?	Effect of projects and other management actions on free flowing status and outstandingly remarkable values.	Review	Stream flow and ORV condition	High	Annual	Annual	Recreation Staff	Loss or free flowing condition or decline in ORV quality.	1,000
Is the classification level of the recommended river being maintained?	Effect of projects and other management activities on the river classification level.	Review	River attributes necessary for recommended classification level.	High	Annual	Annual	Recreation Staff	A decline in relevant attributes.	1,000

Evaluation

When a Monitoring Evaluation Question is answered, "yes", then associated activities will proceed. When a Monitoring Question is answered, "no", then further investigation will occur in order to determine whether there is a need to: 1) take corrective action in implementing Dunes Plan direction; 2) amend the Dunes Plan; 3) revise the output schedule; or, 4) initiate revision of the Dunes Plan.

A designated monitoring coordinator will prepare an annual evaluation report. As applicable, the following will be included in each evaluation report which:

- Summarizes the responses to each monitoring question which is to be answered in the current year.
- Identifies situations where further evaluation is needed, and describes the action which will be taken.
- Describes the status of evaluations which are underway, including the identity of the person who is responsible for conducting the evaluation, and its projected time frame.
- Summarizes the findings of evaluations which were completed during the year, and describes the actions which were taken in response to these findings.
- Lists additional research needed to support the management of the NRA.

Amendments and Revisions

The Dunes Plan will be kept valid and current through the use of amendments and revisions. The guidance for making these changes is in 36 CFR 219.10(f) and (g). As new issues and concerns arise the Dunes Plan will be amended or revised if needed.

Plan Amendments

The Forest Supervisor may amend the Dunes Plan. Based on an analysis of the objectives, standards, and other contents of the Dunes Plan, the Forest Supervisor shall determine whether a proposed amendment would result in a significant change in the Plan. If the change resulting from the proposed amendment is determined to be significant, the Forest Supervisor shall follow the same procedure as that required for development and approval of a forest plan. If the change resulting from the amendment is determined not to be significant for the purposes of the planning process, the Forest Supervisor may implement the amendment following satisfactory completion of NEPA procedures.

The Forest Plan and the Dunes Plan which is tiered to it, incorporates legal mandates, professional judgement and the public's stated concerns into a future vision of the Forest and Oregon Dunes NRA. It charts a path for getting there by developing management goals and objectives and translating them into management direction in the form of standards and guidelines for management areas on the Forest and NRA. National Forest planning is a dynamic process, and the products are similarly dynamic.

Forest Plans can and should be modified if conditions warrant. As management goals are applied on the ground or as new information is learned about resources, the Plan's goals and objectives, or activities the goals generate, may no longer be appropriate. In such instances, activities may be tailored to fit the resource, or planning objectives as stated in the Plan may be amended. Plans do not apply direction in site-specific management activities. Instead, this type of site-specific planning occurs at the project level planning stage.

Plan Revisions

The Forest Plan, and the Dunes Plan which is incorporated as part of the Forest Plan, shall ordinarily be revised on a 10- to 15-year cycle. It also may be revised whenever the Forest Supervisor determines that conditions or demands in the area covered by the Plan have changed significantly. The Forest Supervisor shall review the conditions on the land covered by the Plan at least every 5 years to determine whether the conditions or demands of the public have changed significantly. In the monitoring and evaluation process, the interdisciplinary team may recommend a revision of the Forest Plan and/or the Dunes Plan at any time. Revisions are not effective until considered and approved in accordance with the requirements for the development and approval of a Forest Plan.

Glossary

GLOSSARY

A

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

Anadromous Salmonids - Species of salmon and trout that mature in the sea and migrate back to their native streams to spawn.

Aquatic Habitat - Stream channels, lakes or ponds.

Aquifer - Subsurface pervious zone that transports large quantities of water.

B

Beach Strand - Area of land between the ocean and foredune.

Breaching - Removing a portion of the foredune, allowing sand to blow inland from the ocean.

Breeding Cover - Cover used by animals during the breeding season for activities including mating, incubation and rearing young.

Breeding Habitat - Habitat used by animals during the breeding season for activities including mating, incubation and rearing young.

Buffer - Zone between a sensitive area and disruptive management activities. Usually includes minimally disturbed, vegetation communities.

C

Candidate C2 Species - Comprises taxa for which information now in possession of USFWS indicates that proposing to list as endangered or threatened is possibly appropriate, but for which conclusive data on biological vulnerability and threat are not currently available to support listing.

Canopy - More or less continuous cover of branches and foliage formed collectively by the crown of adjacent trees and other woody growth.

Cavity nester - Wildlife species that excavate and/or occupy cavities in trees and snags.

Climax Seral Stage - The final and most stable of a series of plant communities in a succession, remaining relatively unchanged as long as climatic and physiographic factors remain constant.

Coastal Dune Mosaic - Complex assembly of parabolic, transverse and oblique sand dunes that occupy the central coast area from mean high tide to the Coast Range foothills. The dunes range from unvegetated open sand to stabilized features covered with shrubs or trees. The mosaic is broken by intermittent to continuous wet lowlands called deflation plains.

Coastal Uplift - Continuous periodic rise of the bedrock that constitutes the Oregon Coast. The rise in the bedrock is due to deformation of the earth's crust by subduction of the Pacific Plate beneath the Continental Plate.

Code of Federal Regulations (CFR) - A codification of general and permanent rules published in the Federal Register by the Executive Department and agencies of the Federal Government.

Competing and Unwanted Vegetation - Unwanted plants which may reduce growth or vigor of desired plants, may be toxic to people or animals, pose a hazard to travel or safety, or pose a fire hazard.

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)

Commercial Thinning - Any type of tree thinning that produces merchantable material at least equal in value to the direct costs of harvesting.

Council on Environmental Quality (CEQ) - An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews federal programs for their effect on the environment, conducts environmental studies and advises the President on environmental matters. (Abstracted from the National Environmental Policy Act of 1969, as Amended.)

Cultural Resource - Remains of sites, structures or objects used by humans in the near (historical) or distant (archaeological) past.

Cumulative Impact (Effect) - The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1508.7)

D

Down Material - Dead, woody plant material, usually trunks and branches of dead trees, laying on or near the soil surface.

Decomposer - An organism which converts the bodies or excreta of other organisms into simpler substances such as bacteria, yeast, molds and other fungi.

Deflation Plain - Area east of the foredune which has been scoured down to wet sand. This area holds standing water during portions of the year.

Designated Route - Specially marked trails for ORVs to use for touring and travel in existing vegetated habitats. The routes reach the beach and other areas open to ORVs.

Desired Future Condition (DFC) - Collection of resource goals translated into descriptions of biological and physical conditions that are created, maintained or restored.

Developed Site - Recreation that requires facilities that, in turn, result in concentrated use of an area. An example of a developed recreation site is a campground; facilities might include roads, parking lots, picnic tables, toilets, drinking water and buildings.

Dispersed Setting - General term referring to recreation use outside developed recreation sites. This includes activities such as scenic driving, hiking, backpacking, hunting, fishing, snowmobiling, horseback riding, cross-country skiing and recreation in primitive environments.

Draft Environmental Impact Statement (DEIS) - The draft statement of environmental effects which is required for major federal actions under Section 102 of the National Environmental Policy Act and released to the public and other agencies for comment and review.

E

Ecosystem - Complete, interacting system of organisms considered together with their environment; for example a marsh, segment of stream or lake.

Ecozone - Transition zone between two ecosystems.

Edge - Where plant communities meet or where successional stages of vegetative conditions within plant communities come together.

Edge effect - Increased richness of flora and fauna resulting from mixing of two communities where they join, such as at the edge of a meadow.

Effluent - Outflow or discharge of an undesired by-product.

Emergent Plant - An aquatic plant which extends partially above the water surface.

Encroaching Vegetation - Plants that are gradually advancing into open, unvegetated sand.

Endangered Species - Species of animal or plant that is in danger of extinction throughout all or a significant portion of its range, and identified by the Secretary of the Interior as endangered in accordance with the 1973 Endangered Species Act.

Endemic Plant Species - A plant species that is confined to a particular geographical area.

Environmental Consequence - Projected effect of a federal action or actions on the social and biological environment.

Eradicate - To remove from the area.

Escape Cover - Hiding cover used by animals to hide from predators and/or provide a sense of security.

Estuary - Downstream portion of a river system that widens under the influence of tidal action. Also known as a transition zone between fresh and salt waters. Especially important because sensitive young stages of fish, shellfish and other aquatic organisms often concentrate there.

Exotic Plant Species - An introduced plant species, one that is not naturally found in the geographic area in which it is located.

F

Fertilized Pond - Pond which has had fertilizer added to it to increase production.

Final Environmental Impact Statement (FEIS) - Final version of the statement of environmental effects required for major federal actions under section 102 of the National Environmental Policy Act. It is a revision of the draft environmental impact statement to include public and agency responses.

Flank - Lateral edge of a sand dune.

Flood Plain - Area of land associated with river outlets and estuaries subject to tidal fluctuations or seasonal flooding. Represents deposits left by changing streamcourse or reduced streamflow velocity.

Flotsam - Objects floating on a body of water.

Fog Drip - Moisture that forms as condensation on vegetation during periods of dense fog. Condensation continues until droplets form and fall to earth. Fog drip effectively increases the total precipitation over the amount that comes only as rain.

Forage - To feed; or the material on which animals feed.

Forb - Herbaceous plant species other than those in the Gramineae (grass), Cyperaceae (sedge) and Juncaceae (rush) families; fleshy-leaved plants.

Foredune - Large, continuous, stabilized sand ridge above the beach high tide line. The foredune is formed from sand that accumulates in beach grass.

G

Globally Significant Plant Community - A plant community that is imperiled globally because of rarity (less than 20 occurrences) or because of some factor(s) making it especially vulnerable to extinction throughout its range.

Ground-Disturbing Activity - Human activity that disturbs the soil's surface.

Groundwater - Water beneath the earth's surface that accumulates as a result of seepage through pervious rock or gravel layers and serves as the source of springs and wells.

H

Habitat - The place where a plant or animal naturally or normally lives and grows.

Habitat Improvement/Habitat Manipulation - Changing the physical or biological structure of a particular habitat to achieve predetermined objectives for improving fish, wildlife, or plant habitat.

Headland - High, steep-faced promontory extending into the sea. Also known as a head.

Herbaceous - Adjective describing seed-producing plants that do not develop persistent woody tissue but die down to ground level at the end of the growing season.

Hiding Cover - Cover used by animals to hide from predators and/or provide a sense of security.

High Salt Marsh - Marsh which is only occasionally under tidal influence.

Host Species - Plant or animal which provides food or lodging for another plant or animal.

Hummock - Mounds of sand piled in and around vegetation, one to several meters in height. Generally unstable, eventually eroding away.

Hydrologic - Adjective pertaining to quantity, quality and timing of water yield.

I

Indicator - Qualitative measure of ability to respond to an ICO. It includes outputs, uses or conditions that can be measured and described to judge how well the various alternatives resolve issues.

Indirect Effects - Effects on the environment that were triggered by changes in the environment directly caused by some action. Indirect effects, compared to direct effects, are later in time or farther removed in distance but are still reasonably foreseeable.

Inland Dune Sheet - Dunes that occur on the inland side of the foredune.

Interdunal Swale - Long, narrow depressions between dune ridges which may hold standing water and support water-loving plants.

Invertebrate - Member of the animal kingdom which does not have a backbone.

Irretrievable - Term that applies to losses of production, harvest or use of renewable natural resources. For example, where production is lost, the action is irretrievable, but not irreversible.

Irreversible - Term that applies primarily to use of nonrenewable resources, such as minerals or cultural resources, or to factors such as soil productivity that are renewable only over long time periods. Also includes loss of future options.

J

Japanese Current - System of fast moving, warm ocean currents that originate in Asia and connect with North Pacific currents.

L

Landform - Naturally occurring land structures that have a characteristic shape and are formed by specific processes. Examples include foredune, deflation plain, hummocks and oblique dunes.

Landscape Diversity - How plant and animal communities function and interact within a large network of watersheds and regional scale areas.

Layering or Vertical Structure - Arrangement of vegetation heights within a forest stand which may include overstory canopy, subcanopy, shrub layer and herbaceous layer.

Low Salt Marsh - Salt marsh which is regularly under tidal influence.

M

Macrophyte - Submerged and/or floating aquatic vascular plant (as opposed to algae and phytoplankton).

Management Area - Area composed of aggregate pieces of land to which a given management objective and prescription are applied.

Marine Sand - Sand particles that originated in or were transported from the ocean.

Mean High Tide - Tidal datum derived from the arithmetic mean of daily high tide over a specific 19-year metonic cycle.

Microclimate - Uniform local climate of a small area or habitat.

Migratory Corridor - Normal path followed by animals during regular, seasonal travel.

Mitigation - Practices intended to reduce adverse effects of certain management activities. 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)

Mudflat - Intertidal area, usually within coastal estuaries, that is composed of very thick accumulations of muds and silts.

Municipal Watershed - A watershed which provides water for human consumption, where Forest service management could have a significant effect on the quality of water at the intake point, and that provides water utilized by a community or any other water system that regularly serves: 1) at least 25 people on at least 60 days in a year, or 2) at least 15 service connections. In addition to cities, this includes campgrounds, residental developments, and restaurants.

Mycorrhizal Fungi - Fungus that forms an association with roots of higher plants for the benefit of both. The fungus gets carbohydrates from the roots and the higher plants benefit from extension of their root hairs by the fungal filaments which extend great distances through the soil.

N

National Environmental Policy Act (NEPA) of 1969 - Act to declare a national policy which will encourage productive and enjoyable harmony between humankind and the environment, promote

efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, enrich the understanding of the ecological systems and natural resources important to the Nation, and establish a Council on Environmental Quality. (The Principal Laws Relating to Forest Service Activities, Agriculture Handbook No. 453, USDA, Forest Service, 359 pp.)

National Forest Management Act (NFMA) - Law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act, requiring preparation of Regional Guides and Forest Plans and regulations to guide them.

Natural Dunal Processes - Changes in geomorphology taking place without human intervention on the Oregon Dunes.

Native Species - Species found naturally living in a particular geographical area.

Native Vegetation - Plant or community of plants naturally found in a particular habitat or area.

Net Public Benefit (NPB) - Value to the nation of all benefits less all associated costs. Includes both priced and nonpriced benefits.

No-Action Alternative - Alternative C, which reflects management direction in the current Oregon Dunes NRA Plan.

Non-Native Vegetation - Plants which are not found naturally growing in a particular geographic area.

O

Oblique Dune - Long, sinuous, symmetric ridges running perpendicular to the shoreline.

Off-road Vehicle (ORV) - Vehicle capable of cross-country travel or travel on low-standard roads and trails, for example, motorbike, all-terrain and four-wheel drive vehicles.

Open Sand Dunes - Small, undulating dunes with crests 6-8 feet high to large dunes up to ~~300~~ feet high and 5,000 feet long.

Open Water Habitat - Aquatic habitat.

Optimal Cover - Cover condition most preferred by deer and elk. It has the following characteristics:

- four vegetation layers--overstory canopy, sub-canopy, shrubs, and a herbaceous layer;

- an overstory canopy which can intercept and hold a substantial amount of snow yet has dispersed, small (less than 1/8 acre) openings. This cover type provides hiding and thermal cover characteristics as well as supplemental forage during adverse weather. This condition generally occurs when trees reach about 120 years of age, dominant trees are greater than 21 inches diameter at breast height, and crown closure exceeds 70%.

Outstanding Remarkable (OR) Value - The value of a river-related characteristic of a stream which is either unique (or very rare) or is one of the best examples of a characteristic which is common to many rivers. It is determined by comparing a characteristic of the river being studied with the same characteristic of other rivers in the region. At least one OR value must be present in order for a river to be eligibile for inclusion in the National Wild and Scenic Rivers System.

P

Parabola Dune - Asymmetric U- or V-shaped sand ridge.

Perennial Stream - Stream which flows throughout the year.

People at One Time (PAOT) - Term for measuring recreation capacity that indicates the number of people who can use a facility or area at one time.

Piscivorous Species - Fish-eating species.

Plankton - Small plants and animals suspended in the water.

Planning Period - Length of time that a planning document is intended to be in effect.

Plant Communities - Association of plants in a given area or region in which various species are more or less interdependent upon each other, as in a pond community.

Preferred Alternative (PA) - Alternative F, which has the greatest Net Public Benefit (NPB).

Present Net Value (PNV) - Value that represents the dollar difference between the discounted value of all outputs to which monetary values are assigned and the discounted costs of managing the Forest for the next 150 years.

Public Issue - Subject or question of widespread public interest relating to management of the National Forest System (36 CFR 219.3).

R

Rearing Area - River or stream areas where juvenile salmonids must find food and shelter to survive for a period of time.

Recreation Capacity - Number of people that can take advantage of the supply of a recreation opportunity during an established use period without substantially diminishing quality of the recreation experience or biophysical resources.

Recreation Opportunity Spectrum (ROS) - Land delineations that identify a variety of recreation experience opportunities categorized into six classes on a continuum from primitive to urban. Each class is defined in terms of the degree to which it satisfies certain recreation experience needs, based on the extent to which the natural environment has been modified, the type of facilities provided, the degree of outdoor skills needed to enjoy the area, and the relative density of recreation use. The six classes are:

- **Primitive** - Area is characterized by an essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted.

- **Semiprimitive Nonmotorized** - Area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but would be subtle. Motorized recreation use is not permitted, but local roads used for other resource management activities may be present on a limited basis. Use of such roads is restricted to minimize impacts on recreational experience opportunities.

- **Semiprimitive Motorized** - Area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions use of local primitive or collector roads with predominantly natural surfaces and trails suitable for motor bikes is permitted.

- **Roaded Natural** - Area is characterized by predominantly natural-appearing environments with moderate evidence of the sights and sounds of man. Such evidence usually harmonizes with the natural environment. Interaction between users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities.

- **Rural** - Area is characterized by a natural environment that has been substantially modified by development of structures, vegetative manipulation or pastoral agricultural development. Resource modification and utilization practices may be used to enhance specific recreation activities and maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate user densities are present away from developed sites. Facilities for intensified motorized use and parking are available.

- **Urban** - Area is characterized by a substantially urbanized environment, although the background may have natural-appearing elements. Renewable resource modification and utilization practices are often used to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans are predominant on site. Large numbers of users can be expected both on site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transmit often available to carry people throughout the site.

Recreation Setting - Combination of physical and social environmental factors that determines what activities people engage in and the nature of their recreation experience.

Recreation Visitor Days (RVDs) - Twelve visitor hours, which may be aggregated continuously, intermittently or simultaneously by one or more persons.

Remote Beach - Beach which is closed to off-road vehicles and is greater than one mile from the nearest access point.

Research Natural Area (RNA) - Area set aside by a public or private agency specifically to preserve a representative sample of an ecological community, primarily for scientific and educational purposes. In the Forest Service, RNAs are designated to ensure representative samples of as many of the major naturally occurring plant communities as possible.

Resource Output - Amount of resource produced under a given alternative.

Riparian Area - Terrestrial areas less than 100 feet wide where the vegetation and microclimate are influenced by perennial or intermittent water or both, associated high water tables and soils which exhibit some wetness characteristics. This habitat is transitional between true bottom land wetlands and upland terrestrial habitats and, while associated with water courses, may extend inland for considerable distance.

Roadless Area - Parcel of land usually 2,500 acres or more in size that does not contain roads.

Rush - Wetland indicator plant belonging to the family Juncaceae, typically exhibiting a round, hollow stem.

S

Salmonid - Member of the fish family Salmonidae. Includes salmon and trout.

Salt Meadow - High salt marsh; salt marsh which is only occasionally under tidal influence.

Salt-Dependent Species - Plant species which can only survive in habitats which are under tidal influence.

Salt-Tolerant Species - Plant species that can survive in habitats which are occasionally to frequently under tidal influence.

Sand Compaction - Packing together of sand particles by forces exerted at the soil surface, resulting in increased soil density.

Sand Spit - Small point of land consisting of sand which terminates in the water. Usually forms as a result of interaction of ocean currents and river outflow.

Sand Stabilizer - Material or activity that stabilizes unvegetated, blowing sand.

Scavenger - Animal which devours dead animals or feeds on dead organic material.

Scoping - Process by which the Forest Service determines how inclusive and detailed an analysis is necessary to make an informed decision on a proposed action.

Secondary Gravel - Sand roads

Second Growth - Forest that has grown up naturally after some drastic interference (for example, wholesale cutting, serious fire, or insect attack) with the previous forest.

Sedge - Wetland indicator plant belonging to the family Cyperaceae usually characterized by edged or winged leaves.

Sediment Delivery - Process of transporting eroded soil materials by moving water to a stable location.

Sensitive Species - Species that have appeared in the Federal Register as proposed for classification and are under consideration for official listing as endangered or threatened species, that are on an official State list, or that are recognized by the Regional Forester as needing special management to prevent their being placed on Federal or State lists.

Seral - Term for a biotic community that is a developmental, transitory stage in an ecological succession.

Shrub - Bush or low-growing, perennial plant, usually with several main stems arising near the ground.

Site Avoidance - Mitigation method used in cultural resource management where the project is redesigned or relocated to avoid causing adverse damage to the site.

Site-Specific Environmental Analysis - Analysis of alternative actions and their predictable short and long-term environmental effects, incorporating physical, biological, economic, social and environmental design arts and their interactions.

Snag - Standing dead tree.

Special Habitat - Area that is unusual, unique or limited such as tree islands, wetlands, meadows and breeding sites.

Stable Slope - Slope that has internal strength characteristics sufficient to prevent failure by landslide.

Stable Soil - Soil that effectively resists detachment of individual particles by wind or water, or movement of larger coherent blocks through mass wasting.

Stand - Aggregation of trees occupying a specific area and sufficiently uniform in composition, age and condition so as to be distinguishable from the forest in adjoining areas.

Standard and Guideline (S&G) - Practice needed to achieve desired conditions or levels of environmental quality.

Standing Water - Water that collects at the surface of a saturated soil.

Submergent Plant - Plant which normally grows underwater.

Substrate - Material below the soil.

Succession - Progressive development of vegetation toward its highest ecological expression, the climax community by replacing one plant community with another.

Suitable Breeding Habitat - An environment with all the attributes necessary for a wildife species to breed.

T

Thermal Cover - Cover used by animals to lessen effects of weather.

Threatened Species - Plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future.

Touring - Riding an ORV in a leisurely manner while enjoying the scenery and traveling to a selected destination.

Tradeoff - Reduction or limitation of one or more resource benefits in favor of increasing ~~or~~ improving some other benefits. Some amount of tradeoff is necessary when resource benefits are not totally compatible.

Transition Forest - Seral stage of coastal forest, typically dominated by relatively small shorepine with scattered Sitka spruce, western hemlock, Douglas-fir and western redcedar.

Transverse Dune - Long, sinuous, asymmetric sand dune ridges.

Travel Corridor - Strip of land, usually vegetated, used by animals traveling between two or more habitats.

Tree Island - Small isolated pockets of coastal forests completely encircled by sand, usually five to 10 acres in size.

Tributary Stream - Stream that contributes to and flows into a larger stream system.

U

Understory - Trees and other woody species growing under a more or less continuous cover of branches and foliage formed collectively by the upper portion of adjacent trees and other woody growth.

Undeveloped Setting - A recreation environment where visitors can engage in activities not dependent on facilities, have few other people around, and experience a moderate level of sel reliance and risk.

Unvegetated - An area with no plants, large or small, growing there. Also refered to as "open sand."

Upland - Higher area; typically refers to habitats not riparian, wetland or aquatic.

V

Visual Quality Objectives (VQOs) - Categories of acceptable landscape alteration measured in degrees of deviation from the natural-appearing landscape.

- **Preservation** - Human activities do not change the natural appearance.
- **Retention** - Human activities are not evident to the casual forest visitor.
- **Partial Retention** - Human activity may be evident, but must remain subordinate to the characteristic landscape.
- **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 middleground.
- **Maximum Modification** - Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background.
- **Enhancement** - A short-term management alternative which is done with the express purpose of increasing positive visual variety where little variety now exists.

W

Waterbody - An area of open water with definable boundaries.

Watershed - Portion of the land in which all surface water drains to a common point. Size of watersheds can range from tens of acres that contain a small intermittent stream to thousands of acres for a river that drains hundreds of connected intermittent and perennial streams.

Water Regime - Water cycle.

Water Salinity - Relative scale of salt content in water.

Water Table - Level of groundwater relative to the land surface.

Water Turnover Rate - Rate at which water is replaced in a groundwater system.

Wetland - Area that is inundated by surface water or groundwater with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated soil conditions for growth and reproduction (Executive Order 11990).

Wild and Scenic Rivers - Those rivers or sections of rivers designated as such by congressional action under the 1968 Wild and Scenic Rivers Act, as supplemented and amended, or those sections of rivers designated 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:

- **Wild River Areas** - 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.

- **Scenic River Areas** - 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.

- **Recreational River Areas** - 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.

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