

Section V

Management Strategies

Management strategies are specific actions that will be taken to achieve the management goals described in Section IV. The forest plan is implemented by carrying out management strategies. The plan's success can be measured in part by the degree to which the management strategies are successfully implemented. The plan will be implemented using an adaptive management approach. This approach is described in Section VIII.

A detailed explanation of how the goals and strategies were developed is given in Section I under the heading "The Eastern Region Planning Process."

Strategies are given for the resources that were listed in Section IV, "Management Goals." The list of resources follows the same alphabetical order that was used in Section IV, except for social and economic resources. The goals for social and economic considerations will be met through implementation of the strategies for the other resources.

The individual strategies are presented in the following format.

1. Strategy: The strategies under each resource heading are numbered. The strategy statement is printed in bold.

- a. Details of the strategy are listed underneath, using an a, b, c format.

Analysis: The analysis provides a short explanation of why the strategy is needed, and how the strategy will contribute to achieving the goals in Section IV. The analysis also describes briefly the effects and outcomes that are expected to occur when the strategy is implemented. The outcomes are described in either a qualitative or quantitative way.

The following acronyms are used in this section of the plan.

BLM	Bureau of Land Management
DOGAMI	Department of Geology and Mineral Industries
DSL	Division of State Lands
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ORS	Oregon Revised Statutes
USFWS	U.S. Fish and Wildlife Service

Air Quality

1. Strategy: To protect visibility in Class I wilderness and national park areas:

- a. Do most prescribed burning outside the restricted July 1 to September 15 period.
- b. Consult ODF's meteorologists whenever a prescribed burn is being planned during the restricted period.

Analysis: Visibility protection in Class I areas is mandated by the federal Clean Air Act. The strategy describes how ODF will comply with the Visibility Protection Plan, which is Oregon's plan for protecting visibility in these areas.

The Visibility Protection Plan specifies the visibility protection period as July 1 through September 15, and implements protection measures through the Smoke Management Plan. Its short-term strategies apply mostly to prescribed burning in western Oregon and affect certain designated Class I areas. To ensure that the Eastern Oregon Region complies with the standards of the Visibility Protection Plan, ODF's meteorologists will be consulted before burning during the restricted period. However, for the most part, burning will not coincide with the restricted period. These strategies will prevent smoke intrusions that do not comply with the Visibility Protection Plan.

2. Strategy: Comply with the Smoke Management Plan by continuing to participate in the Klamath County voluntary smoke management program.

Analysis: The Smoke Management Plan is Oregon's SIP for prescribed burning. Its goal is to meet federal clean air standards. The Smoke Management Plan has established a Special Protection Zone to protect the city of Klamath Falls from prescribed burning smoke during the winter months.

The Department of Forestry will comply with the Smoke Management Plan's requirements by participating in the Klamath County voluntary program. From November 15 to February 15, prescribed burning will occur in the Special Protection Zone only when permitted by the ODF meteorologist. No new ignitions will occur on any "red day" between December 1 and February 15. Refer to Section III for the procedures of the voluntary program and the requirements of the SPZ.

3. Strategy: Notify DEQ of changes in prescribed burning that might significantly increase the total yearly amount of smoke emissions.

Analysis: Under the Clean Air Act's PSD (Prevention of Significant Deterioration) standard, increases in PM-10 emissions are measured in comparison to the 1977/1978 base years. PM-10 is the pollutant of most concern in wood smoke. Because of changes in slash treatment and wood utilization, there has actually been a 40 percent reduction in fuels burned on Eastern Region state forests since the 1970s. (See discussion in Section III, under "Air Quality" and "Fire Management.") The trend should remain fairly level or continue to decrease through implementation of this long-range plan. To ensure compliance with the PSD standard, ODF will notify DEQ of any significant changes in burning practices that might increase total smoke emissions. An example would be the use of underburning on a regular or widespread basis.

- 4. Strategy: As an alternative to prescribed burning, use methods such as mechanical slash disposal, chip/biomass sales, or leaving untreated slash in the woods.**

Analysis: This strategy contributes toward meeting the air quality goals by providing alternatives to prescribed burning.

Prescribed burning and alternative methods are also discussed in the resource description and strategies for Fire Management. These are prescribed on a site-specific basis. Smoke reduction is not always the primary reason for using the alternative methods. There may be other reasons, such as protecting residual trees from fire, or offsetting precommercial thinning costs by using leftover wood. In any case, smoke is reduced because these methods are frequently used. Prescribed burning still remains the preferred method to reduce fuel accumulations in many situations.

- 5. Strategy: Reduce the risk of wildfires, which would produce uncontrolled smoke. (Fire prevention, fire suppression, and management of fuel build-up are discussed in the strategies for Fire Management.)**

Analysis: Wildfires produce amounts of smoke that could exceed federal clean air standards or impair visibility in Class I areas. This strategy provides air quality protection not covered by the Smoke Management Plan or the Visibility Protection Plan.

Cultural Resources

- 1. Strategy: Comply with state laws to preserve and protect American Indian sites and objects, as well as historic non-Indian cultural resources.**

- a. ORS 358.920(1)(a) The Department of Forestry will not knowingly or intentionally excavate, injure, destroy or alter an archaeological site or object, or remove an archaeological object. An archaeological object is at least 50 years old, comprises the physical record of an indigenous or other culture, and is material remains of past human life or activity that are of archaeological significance. An archaeological site contains archaeological objects and the contextual associations of the objects with each other or with biotic or geological remains or deposits.

- b. ORS 390.235 The Department does not intend to excavate, alter or disturb any archaeological sites. If a previously unknown site should be discovered to be inadvertently disturbed during road construction, fire suppression, or other forest management activity, the Department will immediately consult the Klamath Tribes (if the site is American Indian), and the Director of the Oregon State Parks and Recreation Department, and will obtain a permit if needed, for example to allow for salvage of material from unavoidable destruction.

- c. ORS 97.740 If a native Indian cairn or burial, funerary object, sacred object or object of cultural patrimony is inadvertently disturbed, the Department will immediately notify the Klamath Tribes. If human remains are discovered which are suspected to be native Indian, this will also be reported to the state police, the State Historic Preservation Officer, and the Commission on Indian Services. American Indian

human remains or funerary objects may be required to be reinterred at the Department's expense under the supervision of the Klamath Tribes.

Analysis: Descriptions of archaeological sites and objects that may be found on state forest lands managed by the Klamath-Lake District are in Section III, under "Cultural Resources." Definitions of archaeological terms are also found in this section.

Protection measures will be considered on a case-by-case basis. The Klamath-Lake District will preserve and protect archaeological sites found on state forest land by site-specific management plans, which may include protective buffers, or location of timber sales and routing of roads to avoid sites.

If historic, non-Indian sites are deemed to be of interest to the public, can be displayed without damage to the resource, and can be safely accessed by the public, the Department may work with appropriate specialists to develop a plan for interpreting and displaying the site. For example, people may be interested in traveling the route of the historic Applegate Trail.

2. Strategy: Identify and assess cultural resources on state forest lands.

Analysis: Cultural resources likely to be found on Klamath-Lake District managed forest lands are described in Section III under "Cultural Resources." State law does not require archaeological surveys of land prior to forest management activities. However, the Department of Forestry is committed to preserving and protecting cultural resources. Location and assessment of archaeological sites is necessary to avoid damage to the sites.

Some areas have been identified that have a relatively high likelihood of containing cultural resources. The Klamath-Lake District plans to contract with a qualified consultant with archaeological expertise to inventory the cultural resource sites in those areas. Any person hired to conduct surveys will be required to seek the assistance and expertise of the Klamath Tribes. For historic, non-Indian trails, such as the Applegate Trail, it may be possible to contract with qualified consultants and volunteers to locate and mark the trail.

3. Strategy: Maintain confidentiality pertaining to the location of American Indian sites and artifacts. This information will be disclosed only to the Klamath Tribes and to appropriate state officials, except where other disclosure is required by law.

Analysis: Vandalism and theft are recognized risks to any cultural resources that remain on the land. In addition, it is the expressed wish of the Klamath Tribes to preserve Indian sites and objects in place with as little disturbance as possible.

Confidentiality is not required by law, but it is standard policy. American Indian sites on state forest land in the Klamath-Lake District will not be considered for interpretive or recreational use, or for archaeological excavation.

Fire Management

1. Strategy: Prevent and suppress wildfires on state forests and other protected lands by supporting ODF's Protection from Fire Program.

Analysis: Uncontrolled wildfire is not permissible due to resource damage and public safety concerns. This strategy is an essential element of protecting forest resources, and is consistent with Oregon public policy as expressed in ORS Chapter 477.

The Protection from Fire program is described in Section III. All state and private forest lands, and some BLM lands in the Klamath-Lake District, are protected through this program. This program should continue to be successful in preventing and limiting the size of natural and human-caused wildfires.

2. Strategy: Manage fuel build-up using the tools listed below.

- a. Prescribed burning.
- b. Alternatives to prescribed burning, such as mechanical slash disposal and chip/biomass sales.
- c. Implementing silvicultural prescriptions to control species composition and stocking levels.
- d. Salvaging dead timber from areas where the concentration is high enough to constitute a fire hazard, as consistent with the goals and strategies for wildlife and fish.

Analysis: Fuels accumulate when light, frequent natural wildfires are not allowed to occur. Hazardous fuel levels increase the risk of an intense, uncontrollable wildfire. This strategy gives several approaches for mitigating fuel buildup. It also contributes toward maintaining a healthier forest ecosystem in the absence of a natural fire regime.

Prescribed burning and alternative methods are prescribed on a site-specific basis. Decisions are based on many factors, such as silviculture, fuel loads, fire risks, chip markets, and related planning goals (e.g., long-term soil productivity, air quality).

Silvicultural prescriptions that control species composition and stocking levels are a fundamental aspect of this strategy. These prescriptions are discussed in other contexts throughout the long-range plan (e.g. in the resource descriptions and management strategies for Biodiversity, Vegetation, Soils, Wildlife and Fish, Forest Health, and Timber). Taken as a whole, the strategies for the various resources will mitigate and take advantage of changes that have occurred in the forest ecosystem as a result of excluding natural fires.

The Department of Forestry does not have a plan for "prescribed natural fire" under which naturally ignited fires could be allowed to burn within certain predetermined conditions. This has been used by federal agencies to manage fuels and achieve ecosystem management goals.

Forest Health

- 1. Strategy: Forest health will be maintained or improved primarily through silvicultural treatments.**

Analysis: This strategy is based on the premise that a diverse, productive, resilient, and sustainable forest ecosystem can be achieved through silvicultural methods. Human intervention is needed to mitigate undesirable forest conditions that tend to result from excluding natural fires.

The silvicultural approaches outlined in “Forest Health” in Section III will generally be followed. (These approaches are found under the headings “Management of Forest Health” and “Specific Management Recommendations for Insects/Diseases” in the “Forest Health” subsection of Section III.) Forest health also underlies the silvicultural approaches that are detailed in the strategies for Timber, Fire Management, Soils, and Wildlife and Fish.

Most treatments will be done in conjunction with timber harvesting and post-harvest activities. The forest health status of individual stands is the major consideration in setting priorities for timber harvesting. Site-specific silvicultural methods will be articulated in pre-sale plan reports. (“Forest Health” in Section III describes stand conditions that increase vulnerability to insects and disease, and outlines various treatments. Analytical methods for timber harvest planning are discussed under “Timber” in Section III.)

Basically, this strategy is a refinement of the silvicultural systems that have kept the Klamath-Lake District healthier than most eastern Oregon forests. ODF’s insect and disease staff, as well as specialists in the other forest disciplines, have been consulted to develop a comprehensive approach. Insect and disease problems will not be eliminated, but should be held to reasonable levels. In fact, a certain number of dead or unhealthy trees may have to be encouraged in order to enhance biodiversity and resilience of the forest ecosystem. This strategy is expected to maintain long-term productivity and revenue generation, and will be compatible with the goals for all forest resources.

- 2. Strategy: Continue to monitor insect and disease damage levels through aerial surveys, ground surveys, stand exams, insect trapping, and other methods.**

Analysis: Insect and disease levels are an indication of forest health. Monitoring is done to detect and evaluate problem situations and to analyze trends. As an element of adaptive management, monitoring is used to evaluate the results of forest health strategies. Monitoring methods are discussed in “Forest Health” in Section III.

- 3. Strategy: Where monitoring has determined that damage is occurring above threshold levels, prescribe appropriate treatments in accordance with the Integrated Pest Management (IPM) law as described in ORS 527-310 to 370.**

Analysis: Integrated Pest Management is a decision-making process that promotes environmentally sound pest management activities. The “Forest Health” subsection of Section III has specific details about IPM.

The management strategies for forest health and other resources already incorporate IPM processes. For example, site-specific management objectives are well-defined, detection and monitoring systems are in place, and pest conditions are periodically evaluated. The basic silvicultural systems (uneven-aged and even-aged management) and related strategies for insects and disease are designed to handle problem situations that are normally encountered. (See strategy 1.) Some examples are the root disease pockets or scattered insect-attacked trees that are found in mixed conifer stands, and the high mistletoe levels in lodgepole pine stands. Strategies have been articulated to handle these situations.

Under IPM, when damage exceeds an established threshold level, some type of special action may be needed. For example, it may become necessary to consider aerial insecticide applications or animal damage control measures. Any proposed actions would be developed, analyzed, implemented, and monitored using IPM procedures. ODF's insect and disease specialists would be consulted for technical advice.

Grazing

1. Strategies for Common School Forest Lands:

- a. Review DSL's rangeland management plans to ensure that there is an adequate plan for each DSL leasehold on Common School Forest Lands, consistent with the goals of this long-range plan.
- b. Work with DSL to resolve any problems or concerns having to do with DSL grazing leases or federal grazing allotments associated with these leases.

Analysis: ODF and DSL have overlapping land management responsibilities on Common School Forest Lands. These strategies define their roles in livestock grazing, based upon applicable statutes and interagency agreements.

The responsibilities of ODF and DSL are spelled out in a contract that was approved by the State Land Board (Oregon Division of State Lands and Oregon Department of Forestry, 1993). Although DSL is assigned the authority and responsibility to manage grazing leases, ODF is responsible for the overall management, control, and protection of Common School Forest Lands. The contract makes ODF responsible for preparing long-range management plans that govern grazing management in addition to the other forest resources. Consequently, ODF will rely upon DSL's expertise in grazing and will regard DSL's grazing management plans as extensions of the long-range plan. ODF will actively review grazing plans such as the Yainax Coordinated Resource Management Plan. ODF will also rely upon DSL to administer grazing leases and to coordinate with federal agencies with regard to grazing allotments and exchange of use. DSL's management of grazing must comply with the current administrative rules for rangeland management on Common School trust lands.

2. Strategies for Board of Forestry Lands that are associated with federal grazing allotments:

- a. Continue to issue grazing leases as requested by federal permittees.
- b. Review the fee structure for grazing leases as part of plan implementation.
- c. Seek the cooperation of federal agencies (USFS and BLM) to ensure that the holders of federal grazing permits comply with allotment management plans on all state, private, and federal lands in the federal allotments. Emphasize compliance with applicable laws such as the Clean Water Act.
- d. Actively participate in the development and maintenance of coordinated management plans for federal grazing allotments that include Board of Forestry lands. Make sure that these plans provide for proper grazing stewardship on Board of Forestry lands.
- e. Examine ODF leases and revise as necessary to ensure proper grazing stewardship.
- f. Ensure that grazing leases do not interfere with land ownership goals (e.g., trading or selling land).
- g. Within 2 years of plan approval, request assistance from DEQ, NRCS (Natural Resource Conservation Service), ODA, USFS and/or BLM, and grazing leaseholders to develop environmental guidelines for grazing on Board of Forestry lands. Use this information to develop strategies c, d, and e above.

Analysis: The Department of Forestry is responsible for grazing leases on Board of Forestry lands. This subset of Board of Forestry lands is located inside federal grazing allotments. The strategies address the open range situation, ODF's relationship to the federal allotments, and ODF's mandates to produce income and protect natural resources.

ODF chooses to comply with the open range laws by allowing grazing and maintaining a relationship with the federal permittee and the federal agency that is responsible for the allotment. The alternative, which is to exclude cattle by fencing, is not practical. Before leases are granted, ODF will make sure they do not conflict with land base goals, for example by becoming an encumbrance that could interfere with the sale or exchange of the property.

3. Strategies for Board of Forestry Lands outside federal grazing allotments:

Sun Pass State Forest

ODF will not pursue grazing leases on these lands. Ranchers will be asked to remove livestock that stray onto the state forest, and problems will be handled on a case-by-case basis. Any person who requests a grazing lease will be responsible for preparing a rangeland management plan. Among the concerns that must be addressed by the plan are:

- a. Suitability and carrying capacity of range for grazing.
- b. How livestock will be kept out of areas where land use designations preclude grazing (i.e., conservancy areas along Sun Creek and Annie Creek).

- c. How grazing will be managed to protect or be compatible with timber production, recreation, cultural resources, fish and wildlife, soils, special forest products, and water resources.
- d. How livestock will be prevented from trespassing onto federal lands.

ODF must determine that the plan adequately addresses all concerns and that ODF's share of revenues generated under the plan will cover the costs of administering the plan, before the plan would be approved.

Other Parcels

Most of these parcels are in open range. Lease requests will be considered on a case-by-case basis. Any resource problems caused by open range grazing without a lease will be handled on a case-by-case basis as well.

Analysis: The Department of Forestry is responsible for grazing leases on Board of Forestry lands. This subset of Board of Forestry lands is in open range, but not within federal grazing allotments. (No lands are known to be in livestock districts.) The strategies address how ODF will deal with open range grazing that may occur, and what criteria will be used to issue leases.

The strategies are consistent with the planning goals. The burden of preparing a rangeland management plan for Sun Pass lies with the lease applicant because ODF does not have the necessary resources. Neighboring ranchers currently do not want their livestock to graze on Sun Pass because they would be in trespass if they wandered onto nearby federal lands. Therefore, grazing probably will not occur at Sun Pass unless a lease and rangeland management plan are formalized. Grazing leases for the other Board of Forestry lands would not be likely to generate enough revenue to offset the cost of issuing the lease.

Land Base

A. Scattered Tracts

See "Location of Eastern Region State Forests" in Section I, for a definition of the scattered tracts; and Appendix L for a detailed discussion of the scattered tract situation.

- 1. Strategy: Evaluate each parcel for exchange potential that would result in blocking these lands on the Klamath-Lake District or other districts with state lands management staff.**
- 2. Strategy: Make recommendations on land exchanges and sales to DSL. On lands with no exchange or sales potential, work with DSL to decide the best course of action to remove these tracts from the Common School Forest Land list.**

Analysis: As currently located and distributed, these lands are very inefficient to manage. These two strategies will increase efficiency by blocking land where the management staff exists, and by removing the remaining lands from the Common School Forest Land list. Removal from the list takes the lands from ODF's management responsibility.

- 3. Strategy: During the evaluation and exchange of these lands, manage the lands only to prevent losses in asset value.**

Analysis: This strategy is aimed at keeping the value of these lands as high as possible until the time of exchange. Management will occur only to prevent loss of value.

B. Klamath-Lake District Lands

- 1. Strategy: The long-term strategy is to exchange the satellite parcels for forest lands that are in or adjacent to the three major tracts. (See “Location of Eastern Region State Forests” in Section I, for a definition of satellite parcels.)**

Analysis: The satellite parcels tend to be small and surrounded by lands not owned by the state. For these reasons they tend to create access problems and inefficiencies during intensive management operations. However, because there is local management of the satellite parcels, their management is not as inefficient as the scattered tracts. For this reason, this strategy is a lower priority than the strategy for the scattered tracts. This strategy will result in increased efficiency of intensive forest management.

- 2. Strategy: Private lands mostly or wholly surrounded by state forest lands (inholdings) will be a high priority for acquisition through exchange or purchase.**

Analysis: Inholdings can cause significant access problems. In addition, management objectives of inholding landowners can be incompatible with state forest management objectives. This strategy will result in increased efficiency of intensive forest management.

- 3. Strategy: Follow the procedures in ORS 197.180 and OAR 660-30, 660-31, and the Department’s State Agency Coordination Program, OAR 629-20, to assure that the Klamath-Lake District’s land use programs comply with Statewide Land Use Planning Goals and are compatible with acknowledged city and county comprehensive plans and land use regulations; while carrying out Board of Forestry and Department of Forestry statutory responsibilities.**

Analysis: All state agencies must comply with the Statewide Planning Goals, by assuring that land uses are compatible with acknowledged local government comprehensive plans and land use regulations. The Department of Forestry’s State Agency Coordination Program at OAR 629-20 describes the procedures to be followed. OAR 629-20-000 states that “it is not the intent of these rules to prevent either the Board of Forestry or the Department of Forestry from carrying out their statutory responsibilities.”

In the case of the Eastern Region Forest Management Plan, the District Forester has followed the specified procedure by notifying local government that the forest plan is being developed and by requesting their review and comment on the compatibility of the draft forest plan with the local government’s comprehensive plan. The procedures in OAR-629-20 will also be followed in order to ensure that the following elements of the State Forest Land Management Program are compatible with acknowledged city and county comprehensive plans and land use regulations:

- a. land use designations
- b. long range plans, block plans, annual operation plans, and transportation plans
- c. land acquisition, sale, or exchange
- d. forest uses not regulated by the Forest Practices Act
- e. non-forest uses

Recreation and Scenic Resources

Recreation

1. **Strategy: Make state forests available for “informal dispersed recreation.”** (See Appendix A for definition of this term.)
2. **Strategy: ODF will not actively promote increases in recreational use.**
3. **Strategy: Monitor recreation use and adjust the level of management and development over time in accordance with changing recreational demands and patterns of use.**

Analysis: The three strategies above form ODF’s overall strategy for recreation. The recreation resource assessment in Section III determined that the current users value the type of informal dispersed recreation currently available in Sun Pass, and do not want to see major changes. In addition, surrounding agencies and private landowners are providing a full spectrum of more developed recreation opportunities, as well as more primitive wilderness opportunities. ODF has not at this time noted significant resource impacts or damage from the current level and type of use. On the contrary, current users have taken very good care of the higher use sites. In addition, ODF does not have the levels of funding needed to take on a significant recreation program. For these reasons, ODF believes that the general strategy above defines our overall role in providing recreation opportunities.

Strategy 3 provides for adaptive management over the long term. Recreational use and impacts will be noted during routine visits to the forest. Unless a change is detected in recreational use, demand, or impacts, additional user surveys will probably not be necessary until the next revision of the long-range forest plan.

4. **Strategy: Provide the following information through tools such as brochures, signs, tour opportunities, and contact with schools.**
 - a. Forest rules and regulations.
 - b. Recreational and camping etiquette.
 - c. Education about the working forest.

Analysis: Providing this information will have many benefits, including the following.

- Inform users about current fire regulations, camping rules, length of stay policies, etc.
- Inform users about ways to accomplish low impact camping, including human waste disposal, garbage disposal, resource protection, and etiquette around other users. Providing this information should help prolong the workability of the informal dispersed recreation role that we see for ourselves. Facilities such as restrooms and garbage cans will not be provided because of the dispersed pattern of camping and limitations in staffing and budgeting.
- Inform users about the state forest land's role as a working forest and explain many of the signs of forest management they will see as they recreate in the forest.

Providing this kind of information will help us achieve several of our goals, including:

- Minimizing adverse impacts on other resources.
- Accommodating a wide variety of uses while minimizing conflicts between users.
- Interpreting the history of the forest and present-day management.

5. Strategy: Correct problems at recreation sites (e.g. trampling, soil erosion, vegetation loss) as needed to achieve the planning goals for water quality, scenery, wildlife, and other forest resources.

6. Strategy: Control access to sensitive areas of the forest, such as critical wildlife habitat or cultural resource sites. Some ways to control access are seasonal road closures, putting existing roads to rest, and carefully routing trails.

Analysis: Strategies 5 and 6 provide additional ways of minimizing adverse impacts on other resources.

7. Strategy: Develop a policy on fees and permits within 4 years of the adoption of the long-range plan.

Analysis: Permits and fees may be required for commercial recreation and may be required for large groups and for certain types of recreation. As a general rule, individuals, families, and small groups will continue to have free access without permits. This strategy will help establish consistent and coordinated recreation management.

8. Strategy: Work with user groups, neighboring landowners, and other agencies that approach ODF and are interested in planning, developing, maintaining, and/or funding specialized recreation that is compatible with Land Use Designations and other resource goals.

Analysis: This strategy will help maximize efficiency and diversify funding of recreation management.

Scenic Resources

1. Strategy: Meet Forest Practices Act requirements along designated scenic highways.

Analysis: Only one parcel of timber production land is adjacent to a designated scenic highway. This parcel is in a lodgepole pine plant association and is therefore scheduled for even-aged management. In this parcel, the scenic protection strategy will be to follow the

Forest Practices Act standards for designated scenic highways (ORS 527.755). These standards specify how scenic values will be protected along designated highways.

- 2. Strategy: In high public use areas scheduled for timber management, logging systems will be designed to minimize visual impacts.**

Analysis: An example of one way to do this would be to locate logging roads, skid trails, and landings away from the sensitive area. Actual methods will depend on site-specific conditions. This strategy will help minimize the visual impacts of forest management activities in a manner consistent with the primary use of the land.

Soils

Strategies for All Soils

- 1. Strategy: Comply with all Oregon Forest Practices Act requirements for soil protection.**

Analysis: OAR 629-24-442 has general provisions for protecting forest soils during forest operations; e.g., adapting the logging method and type of equipment to the given slope, landscape, and soil properties in order to minimize soil deterioration. The water protection rules (OAR 629, Divisions 635 through 660) protect long-term soil productivity and hydrologic functions within riparian management areas and wetlands.

This strategy, combined with the following soils strategies, will adequately protect long-term soil productivity during forest operations. Site-specific details are given in pre-sale plan reports and in written plans (as required) for riparian management areas. Timber sale operators must comply with the administrative rules during harvesting operations.

- 2. Strategy: Maintain quantities of organic material in the soil (e.g., duff and litter).**
 - Conduct prescribed burns under conditions that minimize the impact to soil organic materials. For example, take into consideration the amount and distribution of fuels, fuel moisture, weather conditions, and topography.
 - During harvesting activities, use logging systems that minimize disturbance to the existing duff, litter, and woody debris, except where disturbance is desirable to facilitate natural regeneration. Retain logging residue (limbs, tops, cull logs, etc.) while not creating an unacceptable fire hazard.

Analysis: This strategy recognizes the importance of maintaining duff and litter. Organic materials increase soil fertility, retain moisture, slow water run-off, and prevent erosion. On water-repellent pumice and ash soils, organic materials also help to reduce erosion during intense thunder showers. The strategy also contributes to biodiversity by providing habitat for small creatures.

Long-term soil productivity will be enhanced as duff and litter accumulate to higher levels than under a natural wildfire regime. The amounts will vary from one place to another because logging debris, fire intensity, and other disturbances will be distributed unevenly. Fuel treatment strategies (e.g., prescribed burning and alternative methods) will offset the risk of damaging the soil's organic content during an intense wildfire. Carefully executed prescribed burns will not cause undue damage.

Additional Strategies

1. For ash and residual soils:

- a. Restrict ground-based logging to the dry season.
- b. Plan a permanent system of skid trails that occupies no more than 10% of the area.

Analysis: Ash and residual soils are susceptible to compaction by ground-based equipment such as skidders. This strategy mitigates the effects of ground-based equipment on long-term soil productivity. Ash and residual soils are less susceptible to compaction when they are dry. The amount of ground area exposed to compaction will be limited.

2. For pumice soils: Allow operations to occur when these soils are wet or frozen.

Analysis: Pumice soils are difficult to compact, even when wet. Soil displacement and dust can be a problem when pumice soils are dry. This strategy will permit the year-round scheduling of operations. Allowing operations to occur in either summer or winter will not cause any appreciable change in long-term soil productivity.

Soil Erosion

The above strategies address soil erosion as it relates to long-term soil productivity, but water quality can also be affected by sediment produced by soil erosion. Erosion from roads and skid trails is a problem that may affect water quality more than long-term soil productivity. This type of erosion is discussed in the strategies for water resources.

Special Forest Products

1. Strategy: Participate in the Department of Forestry's Special Forest Products Committee, whose task is to develop a state forests policy for the management and marketing of special forest products. Once the policy is in place, reevaluate the Klamath-Lake District's approach to special forest products.

Analysis: The Department of Forestry currently does not have a department-wide policy. The purpose of the committee is to create overall policy for individual districts to use in managing and marketing special forest products.

Some of the issues that will be addressed in the Department's policy include marketing, environmental concerns, conflicts with other resources, and program administration. Within the framework of the statewide policy, each district will be able to develop a program suited to local circumstances.

2. Strategy: Until a department-wide policy is developed, the Klamath-Lake district will:

- a. Continue to develop a permit system for mushrooms.
- b. Continue to provide opportunities for personal use firewood cutting in harvested areas, where compatible with management strategies for post-harvest residues.
- c. Continue to respond to requests for other special forest products on an individual basis.

Analysis: This strategy addresses the current demand for special forest products. Specific strategies are given for the two products that are currently in demand; mushrooms and firewood. (Refer to “Special Forest Products” in Section III for details.) The experimental system for mushrooms allows both commercial and personal use harvesting. It may be modified as experience is gained. Firewood permits are issued on a site-specific basis, with consideration given to the strategies for soils, air quality, fire management, and timber. Feedback from this interim strategy will be useful for developing the department-wide special forest products policy.

Subsurface Resources

1. Strategy: DSL and ODF will coordinate to provide for the exploration and development of subsurface resources while providing needed protection of surface resources. ODF will:

- a. Review DSL’s plans and leases for the exploration and development of subsurface resources to ensure that they are consistent with the goals of this long-range plan.
- b. Work with DSL to resolve any problems or concerns.

Analysis: The Division of State Lands is the managing agency for all subsurface resources on both Common School Forest Lands and Board of Forestry lands. This strategy clarifies the relationship between DSL and ODF, based upon applicable statutes and interagency agreements.

ODF manages, protects, and controls surface resources on Common School Forest Lands and Board of Forestry lands. DSL, acting on behalf of the State Land Board, is the managing agency for subsurface resources. ORS 273.780 gives the Land Board authority for mineral and geothermal rights on most lands owned by the state of Oregon. The net proceeds from these rights are distributed to the Common School Fund or the counties, depending on the land ownership.

For Common School Forest Lands, the responsibilities of ODF and DSL are spelled out in a contract that was approved by the State Land Board (Oregon Division of State Lands and Oregon Department of Forestry, 1993). The contract makes ODF responsible for preparing long-range management plans that govern minerals management in addition to the other forest resources. Consequently, ODF will rely upon DSL’s expertise and will regard DSL’s subsurface resource management plans as extensions of the long-range plan. ODF will also rely upon DSL to administer leases.

For Board of Forestry lands, ODF will similarly rely on DSL’s expertise to prepare management plans and administer leases.

Permits and leases contain the terms, conditions, and operating instructions for exploration and development. The Department of Forestry, as surface owner, signs these agreements. As it stands, these documents constitute DSL's plans for exploration and development. The current resource description indicates that there is little known potential for development (see "Subsurface Resources" in Section III). Therefore, a more comprehensive plan does not appear to be needed at this time.

This strategy is consistent with ODF's planning goals for subsurface resources as well as for timber and other surface resources.

2. Strategy: Any data that the Department of Geology and Mineral Industries (DOGAMI) obtains involving exploration in or near the Klamath-Lake District state forests will be reviewed by DSL for its applicability to management of these lands.

Analysis: Companies conducting gas, oil, or mineral exploration are required to provide DOGAMI with information on their findings.

DSL will review new information to update management plans for the forests. The resource description in Section III was based largely on research done at DOGAMI's library. So far, no commercially viable energy or mineral deposits are believed to occur on the state forests.

3. Strategy: If development occurs:

- a. DSL will ensure that mining and drilling are carried out by state-of-art methods to ensure that the Common School Fund, counties, and local taxing districts receive maximum revenues.
- b. DSL will develop working guidelines, in cooperation with other state agencies (such as DOGAMI, ODFW, Department of Environmental Quality, etc.) for permitting gas, oil, and mineral development using environmentally sound techniques.
- c. If potential conflicts exist between development of subsurface resources and protection of surface resources, DSL will confer with DOGAMI and ODF to find solutions that allow development while providing needed protection.

Analysis: This strategy describes how various state agencies will interact when mineral or geothermal development occurs.

DSL, as the managing agency, works closely with DOGAMI as well as other affected agencies. DOGAMI is the regulatory agency for the exploration, development, and reclamation/abandonment of subsurface resources. The resource description has additional details about the regulatory processes (see "Subsurface Resources" in Section III). This strategy is consistent with the planning goals for subsurface resources, as well as for timber and other surface resources that might be impacted by mineral or geothermal development.

- 4. Strategy:** DSL will cooperate with DOGAMI to develop a set of geologic maps aimed at specific mineral commodity locations on the Klamath-Lake District. For example, it may be appropriate to conduct a geologic investigation directed to locating occurrences of quarry rock.

Analysis: This strategy further develops DSL's role as the managing agency for subsurface resources.

Geologic maps will be an aid to future planning. The strategy is consistent with the planning goals since it identifies lands where exploration and development might occur, and where development may increase the long-term production of revenue.

Threatened, Endangered, and State Candidate Plants

- 1. Strategy:** If plants on the base list become listed under the State of Oregon Endangered Species Act, develop an assessment methodology for each species in consultation with the Oregon Department of Agriculture (ODA).

Analysis: A two-phase process for complying with OAR 603-73-090 (5)(a) is described in the "Vegetation" resource description in Section III. A base list has already been compiled for the Klamath-Lake District. It consists of two species that are proposed to be listed as threatened or endangered. In case either species becomes listed, this strategy will fulfill the second phase in the process for complying with the administrative rule.

The objective of the assessment methodology is to allow ODF to screen specific activities in specific locations for potential conflicts with listed species. ODF will seek technical advice from ODA to develop methodology that is appropriate for each species or management activity. The two agencies have no prior experience working together to develop this methodology, so the outcome of this strategy is uncertain. For the two species that are proposed for listing (*Astragalus peckii* and *Botrychium pumicola*), assessments would probably be limited to specific habitats inside the lodgepole pine zone, which occupies 4,149 acres, or about 18% of the North Block.

- 2. Strategy:** Apply the assessment methodology to determine if a conflict exists between a proposed activity and a listed species. If ODF determines that a conflict exists, follow the procedures outlined in OAR 603-73-090 (5)(b) - (5)(h).

Analysis: This process is in compliance with the statutes for the protection and conservation of listed plants. The specific statutes are ORS 564.105 (3) and ORS 564.115. ODF, in consultation with ODA, must determine whether the forestry activity is consistent with ODA's conservation program for the species. If no conservation program is in place, ODF must determine whether the activity has the potential to "appreciably reduce the likelihood of survival or recovery of any population of any plant species that is listed as threatened or endangered." If so, ODF must recommend reasonable measures to minimize any potential adverse impacts of the activity. ODA's role is to review ODF's proposal and recommend alternatives if necessary. In deciding whether or not to implement ODA's

alternatives, ODF may weigh the benefits of the proposed forestry activity against the harm from failing to implement the alternatives.

At this time, ODA has not developed conservation plans for any listed species. Until conservation plans are developed, ODF will make determinations on the relationship between forest management activities and listed plant species as described in the preceding paragraph. So far, ODF has not had any need to work through this process. Therefore, the potential effect on forest management activities in the Klamath-Lake District is uncertain.

- 3. Strategy: To contribute to the prevention of further listings of candidate plants as threatened or endangered, ODF will consult with ODA on protection measures for any known population of state candidate species on state forest land. ODF will determine whether to implement any of ODA's recommendations.**

Analysis: There is no legal requirement to follow this strategy, but it is considered prudent to prevent plants from becoming listed if possible. Protection measures will be considered on a case-by-case basis. The decision to implement these measures may take into consideration the legal mandates, policies, and planning goals for all forest resources.

- 4. Strategy: If plant species become listed under the federal Endangered Species Act:**
 - a. For those listed as "endangered", no action is required other than to comply with state laws and regulations, unless specific federal regulations have been issued.
 - b. For those listed as "threatened" or "endangered", ODF will comply with any specific regulations issued by the Secretary of the Interior.

Analysis: Appendix E lists the plant species of concern that are suspected or documented in the Klamath-Lake District. None of these plants are currently listed under the federal Endangered Species Act. In case any plants are listed in the future, this strategy outlines ODF's obligations as a non-federal landowner to comply with the Act.

In 1988, Congress strengthened the protection of endangered plants. Section 9 of the Act prohibits "removal or destruction of endangered plants on non-federal land by anyone who in the process of destroying the plants knowingly violates any state law or regulation, including criminal trespass laws." (Rohlf 1989) Criminal trespass should not be an issue in state land management unless, for example, a person enters state land without permission and removes or destroys a plant. In the normal course of management activities, ODF intends to comply with all state laws and regulations such as the Forest Practices Act and the state Endangered Species Act. Even if a federally-listed endangered plant should be damaged during the course of lawful activities, ODF would not be in violation of the federal Endangered Species Act. However, if the Secretary of the Interior has issued specific regulations for either threatened or endangered plants under Section 4 of the ESA, then ODF must comply.

Timber

1. **Strategy:** Continue to practice the silvicultural systems described in “Current Timber Management Practices”, which is part of the subsection “Forest Products: Timber” in Section III.
 - a. Uneven-aged management in the ponderosa pine and white fir forest zones.
 - b. Even-aged management in the lodgepole pine forest zone.

2. **Strategy:** Site-specific silvicultural prescriptions or marking guidelines will be prepared for all silvicultural treatments.

3. **Strategy:** Adopt the additional stand density and large tree standards for the Forest Connectivity Areas articulated in the Wildlife and Fish Strategies (Section V).

Analysis: Strategy 1 describes a general direction for regulating stocking levels and species composition in the white fir, Douglas-fir, and ponderosa pine forest zones; and sets the basic silvicultural systems to be used in the lodgepole pine forest zone. Where there are particular insect or disease problems, these will be addressed by employing strategies contained in the Forest Health strategies and described in “Forest Health” in Section III.

The site-specific prescriptions in strategy 2 will be based upon the particular set of stand density, species composition, structure, and forest health conditions existing at the time of a particular management treatment. In many areas, these prescriptions will dictate the removal of trees based on individual tree quality, species preference guidelines, stand structure, etc. In parts of stands with desirable species composition, stand structure, and forest health conditions, these prescriptions will dictate stand density reductions to the level that will allow the areas to grow back to the highest stocking level consistent with maintenance of adequate individual tree vigor and forest health by the next planned entry. Tools such as Stand Density Index as discussed by Long (1985) and Cochran (1992) and Growth Basal Area as discussed by Hall (1993) will be used in the development of these fine-tuned prescriptions. As new tools are developed they will be evaluated and used where appropriate.

The standards in strategy 3 above were developed to assure that Sun Pass State Forest provides adequate connectivity between late successional habitat on surrounding federal lands. This timber management strategy was developed primarily to meet wildlife goals.

The three strategies above, taken together, will contribute to meeting our goals of producing revenue, producing a sustained yield of timber, and promoting the growth of forest trees and stands by using appropriate silvicultural techniques

4. **Strategy:** Regulate sustained yield harvest levels on an acreage, rather than volume, basis.

Analysis: The volume of timber harvested each year will vary, but the number of acres will be approximately equal. Because of wide variation in plant communities, site quality, current conditions, and other factors, volumes harvested from stand to stand will vary greatly. In addition, many of the most overstocked stands in need of immediate treatment

are also the stands that will yield the greatest volumes per acre. Acreage regulation enables the timely treatment of these stands by allowing more acres to be treated annually during the early years of the first decade than if we were regulating on a volume basis. This timely treatment of severely overstocked stands is crucial to the long-term productivity and health of these stands.

Implementation of strategies 1 through 4 will result in the estimated outputs shown in the following table.

Table V-1. Estimated Timber Harvest for the First Six Decades						
Decade	Harvest Acres			Harvest Volume (MMBF)		
	BOF	CSFL	Total Acres	BOF	CSFL	Total Volume
1	9,813	2,074	11,887	74.04	16.03	90.07
2	10,228	1,737	11,965	74.57	12.34	86.91
3	9,011	1,353	10,364	56.76	6.84	63.60
4	10,703	1,301	12,004	76.95	10.51	87.46
5	11,393	1,999	13,392	81.33	11.43	92.76
6	10,907	2,134	13,041	90.07	11.16	101.23

Acronyms used in the table:

BOF Board of Forestry Lands
 CSFL Common School Fund Lands
 MMBF Million board-feet

4

Because this plan is regulated on an acreage, rather than a volume basis, the number of acres receiving harvest treatment is less likely to change over time than the volume harvested. Through the process of adaptive management described in Section VIII, we will monitor how well our strategies are enabling us to achieve our goals. If necessary, we will adjust silvicultural prescriptions. Adjustments could either increase or decrease harvest volumes.

Strategy 5 clarifies how we intend to implement sustained yield harvesting.

5. Strategy: Collect forest inventory data for the purpose of monitoring stand development and growth rates, modifying stand treatments, and calculating sustained yield harvest levels. See “Timber Inventory and Analysis for the New Plan” under “Forest Products: Timber” in Section III.

- a. Update stand inventories and redo Stand Prognosis Model runs as a management cycle is completed for each stand.
- b. Maintain the existing permanent plot system in selected Sun Pass stands to obtain stand-level information on growth and development.

Analysis: This strategy contributes to adaptive management by providing a feedback mechanism to answer many questions, including the following.

- Have stand density, structure, and species composition objectives been met?
- Are predicted growth rates being realized and do sustained yield estimates need to be adjusted?

In addition, this strategy serves an important monitoring function for other resources. (See Section VIII, Monitoring, Research, and Adaptive Management).

6. Strategy: Salvage harvest may be done following disease or insect epidemics, fire, and windthrow events. Structural elements for wildlife (e.g. snags and down woody debris) will be retained.

Analysis: Some benefits of salvage harvest are discussed in “Forest Health” in Section III. Some constraints on salvage harvest that provide for the retention of snags and woody debris for wildlife are discussed in the Wildlife and Fish strategies of this section. Catastrophic fire or massive insect and disease mortality could result in short-term harvest levels exceeding the sustained yield levels articulated above. If such a catastrophic event occurred, future sustained yield levels would need to be recalculated.

This strategy contributes to meeting our revenue production goal by enabling us to capture the value of trees that would otherwise be lost. This strategy also contributes to meeting our Forest Health goal in cases where salvage will reduce further infestations.

7. Strategy: During the first five years of the plan, a wood quality strategy will be developed to assist the Department of Forestry in making appropriate silvicultural decisions for improving revenue production.

Analysis: Market research will be conducted during the first three years to gather the information necessary to develop this wood quality strategy. The strategy would answer questions such as, what type of wood quality are we striving for? What are the desirable species and tree sizes? Should pruning be a part of our strategy to produce clear pine?

Water Resources

1. **Strategy: Continue to meet all Oregon Forest Practices requirements regulating the conduct of forest operations for protection of waters of the state.**

Analysis: Forest Practices Act requirements must be met for all forest operations. The water protection rules (OAR 629, Divisions 635 through 660) are specifically designed to achieve Oregon’s water quality standards. These standards are based on the federal Clean Water Act.

This strategy will achieve the planning goals for water quality standards, beneficial uses of waters of the state, and water-related functions of riparian lands. Beneficial uses (i.e. fish and domestic use) are incorporated into the Forest Practices Act’s stream classification system and protection guidelines. As stated in OAR 629-635-100(3), the purpose of the water protection rules is to “protect, maintain, and where appropriate, improve the functions and values of streams, lakes, wetlands, and riparian management areas. These functions and values include water quality, hydrologic functions, the growing and harvesting of trees, and fish and wildlife resources.” Site-specific details are given in pre-sale plan reports and in written plans (as required) for riparian management areas. The timber sale operator must comply with the administrative rules during harvesting operations.

2. **Strategy: Cooperate with neighboring landowners, including federal and state agencies, to identify specific projects, practices, or monitoring needs that contribute toward solving a watershed problem or concern. Evaluate proposals with respect to the relative impact of state forests in the affected watersheds, as well as consistency with planning goals and strategies, primary land use, and laws and policies that guide the management of state forests.**

Analysis: State forests are generally scattered across the landscape, and have a greater impact on local watersheds in comparison to the larger basin. ODF will consider projects or practices that make sense when measured according to the criteria given above.

The overall set of water strategies will, in general, satisfy the goals for watershed health. This strategy describes how state forests can make an additional contribution toward solving special problems or concerns, without carrying a disproportionate share of the burden. At this time, no specific problems or concerns have been discussed with other landowners. Section III (in “Water Resources” and “Wildlife and Fish”) describes how the Upper Klamath Basin’s aquatic ecosystems have deteriorated, resulting in the listing of the Lost River and shortnose suckers as endangered. This strategy addresses the possibility that cooperative watershed-scale actions may be needed to improve aquatic conditions in the basin. Other landscape-scale strategies related to the broader forest ecosystem are addressed in the management strategies for “Forest Health” and “Wildlife and Fish.”

3. Strategy: Continue to use the Protective Conservancy — Critical Wildlife Habitat land use designation to protect stream, riparian, and wetland functions along Sun Creek, Annie Creek, and Tamarack Spring.

Analysis: This strategy gives additional protection to uncommon, water-related habitats. The strategy is consistent with the planning goals for water storage, water-related functions of riparian lands, beneficial uses of water, and wetlands. Protection given by the Protective Conservancy — Critical Wildlife Habitat land use designation exceeds Forest Practices Act requirements. The Board of Forestry or the State Land Board, as appropriate, must approve any significant reclassification. Timber harvesting is not precluded, but will be done only to improve fish or wildlife habitat at the request of ODFW biologists. Livestock grazing, which is managed by the Division of State Lands at Tamarack Spring, is not precluded. As stated in the grazing strategies, ODF and DSL are to coordinate the protection of forest resources such as Tamarack Spring.

4. Strategy: Maintain water quality and aquatic habitat by complying with road construction and maintenance standards specified in the Forest Practices administrative rules (OAR 629-24-420 through 424).

Analysis: As stated in OAR 629-24-420, the purpose of these rules is to establish minimum standards for forest practices that will provide the maximum practical protection to maintain forest productivity, water quality, and fish and wildlife habitat during road construction and maintenance.

Compliance with the rules will adequately protect streams from sediment that forest roads might generate. The few surface streams are not believed to be exposed to significant amounts of road sediment because of soil characteristics (permeability and infiltration rates) and road locations.

5. Strategy: Ensure that a water right or permit is obtained from the Water Resources Department prior to any surface water use.

Analysis: ODF holds a number of water rights. For uses that are not covered by a water right, a temporary water permit will be obtained by ODF or the timber sale operator. The Klamath-Lake District feels this strategy will adequately provide for its long-term water needs. Water uses that require a water right or permit include prescribed burning, herbicide spraying, and road dust abatement. For these uses, there are alternatives in case temporary permits become unavailable.

6. Additional strategies that may affect water resources are given in the soils section.

Wildlife and Fish

The Eastern Region State Forests Planning Team has worked closely with biologists from ODFW and USFWS to determine the role of the Klamath-Lake District state forest lands in providing habitat. In addition, the planning team has worked closely with ODFW biologists to develop these strategies.

Coarse Filter Strategies for All State Forest Lands

Coarse filter strategies are those strategies designed to maintain or enhance overall biodiversity and provide for the needs of most species. The current management practices for timber and the current programs for wildlife and fish form a good basis for a coarse filter strategy, and are listed below. See Section III for discussion of these practices and programs (under “Forest Products: Timber” and “Wildlife and Fish”). More specifically, these standard practices and programs will provide the foundation for protecting biodiversity, and will meet the habitat needs of most wildlife species native to these state forest lands. The following strategies apply to all state forest lands in the Klamath-Lake District.

1. Strategy: Continue to implement the current timber management practices.

Analysis: These practices are discussed in Section III under “Forest Products: Timber.” The discussion in Section III provides detail about the uneven-aged and even-aged silvicultural systems used.

A discussion of how these practices impact biodiversity is contained in Section III under “Biodiversity.” These timber management practices provide diversity while minimizing fragmentation of habitat. These practices will provide much habitat for fish and wildlife species appropriate to the pine-dominated ecosystem.

2. Strategy: Continue to maintain the current set of Conservancy — Critical Wildlife Habitat Areas.

Analysis: These areas are described in Section III under “Wildlife and Fish.” This strategy gives protection to uncommon or unique special habitats. Protecting uncommon or unique habitats will contribute to the goal of providing habitat for wildlife species appropriate to the pine-dominated ecosystem. In addition, the conservancy areas along Sun Creek and Annie Creek will protect the quality of fish habitat.

3. Strategy: Continue to implement the current timber management practices related to snags, large trees, cover areas, and annual sale planning.

Analysis: These practices are discussed in Section III under “Wildlife and Fish.” The practices relating to snags and large trees provide additional habitat diversity. The practices related to cover areas provide hiding cover for big game as well as dense cover for a variety of other species. Annual sale planning enables ODFW to advise ODF if proposed sale areas have additional habitat needs not covered by the standard timber management practices, and to make habitat protection and enhancement recommendations.

4. **Strategy: Salvage harvests will be conducted only when the number of dead and dying trees exceeds at least twice the minimum targets for snags in the stands being considered for treatment, or where snags pose a hazard to property or public safety.**

Analysis: Implementing the strategies for Forest Health and Timber will maintain a healthy forest and reduce the occurrence of catastrophic tree mortality from insect and disease epidemics. These Forest Health and Timber strategies will reduce the natural recruitment of snags. This strategy is designed to provide a means to capture snags when mortality does occur. Related strategies are found under Timber and Fire Management.

5. **Strategy: Minimum targets for snag levels on state forests will be set as follows:**

- a. At least 2.2 total snags per acre greater than 10 inches DBH.
- b. At least 0.2 of these snags per acre should be greater than 20 inches DBH.

Analysis: Previous strategies provide several methods to ensure the continued recruitment of snags. This strategy enables the effectiveness of these snag recruitment strategies to be monitored. Snag levels will be monitored as part of periodic stand inventories. (See Section III, “Forest Products: Timber”; Section V, “Timber Strategies”; and Section VIII, “Monitoring.”)

6. **Strategy: Artificial methods for creating snags will be used to bring snag levels up to the minimum targets.**

Analysis: It is recognized that these targets will not be met on every acre or in every stand. Some stands will have more snags than the target and some will have less. This strategy will be employed only when significant blocks of forest are not meeting target snag levels. This determination will be made in conjunction with ODFW during annual timber sale planning.

Strategies 3 through 6 further contribute to the goal of providing habitat for wildlife species appropriate to the pine-dominated ecosystem as well as contributing to the prevention of future listings of snag-dependent federal Category 2 and state critical sensitive species.

Fine Filter Strategies for Sun Pass State Forest

Individual species and habitats that are not adequately addressed using the coarse filter strategies are managed specifically under a fine filter strategy.

1. **Strategy: Continue to participate in the Sun Creek Cooperative Road Closure.**

Analysis: The Sun Creek Cooperative Road Closure is discussed in Section III under “Wildlife and Fish.” This strategy was designed to increase habitat effectiveness for calving and early winter staging elk. This strategy further contributes to the goal of providing habitat for wildlife species appropriate to the pine-dominated ecosystem.

Forest Connectivity Areas

One of the goals articulated in Section IV for the wildlife and fish resource was to manage habitat in a regional context. Glen Ardt, Central Region Habitat Biologist for the Oregon Department of Fish and Wildlife, was assigned to develop ODFW's answer to the following question: should Klamath-Lake District state forest land contribute to any additional regional habitat role that the coarse filter strategies do not provide?

In order to answer this question, Glen met with Crater Lake National Park and Winema National Forest staff to gather information on current habitat conditions and future trends on the federal lands adjacent to Sun Pass State Forest. Glen then worked with Chris Carey, ODFW's Central Region Wildlife Diversity Biologist and Dave McAllister, ODFW's Forest and Range Program Manager to develop ODFW's recommendation.

As a result of this work, ODFW recommended that Sun Pass State Forest provide connectivity for late successional dependent species between the four late successional reserves that surround Sun Pass on the Winema National Forest and the late successional habitat in Crater Lake National Park (see Section III, "Biodiversity"). In addition, ODFW recommended that the habitat needs of the pileated woodpecker and the goshawk be used to develop the habitat component standards and that these two species be monitored as indices of the standards' success.

Strategies 2 through 7 articulate how this connectivity role will be fulfilled.

2. Strategy: Approximately 2,000 acres will be designated as Forest Connectivity Areas in the ponderosa pine and white fir forest zones, to provide additional assurance that Sun Pass State Forest fulfills its connectivity role. Once selected, these areas will remain relatively fixed for the duration of this plan. These stands will be managed for timber production, but will differ from the coarse filter silvicultural prescription in two key characteristics:

- a. Higher density, with greater crown closure. Site-specific prescriptions must remain consistent with the need to maintain individual tree vigor and forest health. In most stands, this will be accomplished through lighter, more frequent timber harvests (for example, every 10 to 15 years instead of the usual 20 years). In high elevation stands, which receive higher annual precipitation, this may be accomplished by leaving higher densities in white fir and Shasta red fir.
- b. More large trees. The target will be to leave an average of at least 15 trees per acre over 18 inches DBH after each harvest entry. At least 4 of these trees will be over 25 inches DBH. Large trees create habitat that is favored by the indicator bird species, and provide recruitment for future large snags and woody debris.

- 3. Strategy: During one of the first two years of the plan, Sun Pass State Forest will be surveyed for nesting pileated woodpeckers and goshawks.**

Analysis: The pileated woodpecker, a state critical sensitive species, and the northern goshawk, a federal Category 2 and state critical sensitive species, were selected as indicator species to monitor the effectiveness of the Forest Connectivity Areas in achieving Sun Pass's connectivity role. This survey information will serve as baseline data and in the short-term will be used to help designate the location and distribution of the Forest Connectivity Areas. Selection of these areas will not occur until after this survey is complete.

- 4. Strategy: Habitat information will be collected on nest areas and/or home ranges discovered for these two species.**

Analysis: Habitat requirements for a species can vary significantly across its range. While much published information exists on the habitat requirements of these two species from around the country, it is important to determine what habitat conditions are being used in Sun Pass State Forest. The next strategy explains how this information will be used.

- 5. Strategy: Additional standards for snags and woody debris for pileated woodpecker habitat will be developed for the Forest Connectivity Areas.**

Analysis: These standards will be based on existing published information as well as habitat information collected on Sun Pass pair home ranges. Woody debris levels will also be monitored on these Forest Connectivity Areas as part of periodic stand inventories. Snag levels are monitored on all stands.

- 6. Strategy: A subset of the Forest Connectivity Areas will include at least three areas approximately 80 acres in size managed to maintain goshawk nesting habitat. Existing published information plus habitat information collected on Sun Pass nest locations will be used to quantify additional standards for these areas. Once selected, these areas will remain relatively fixed for the duration of the plan.**

Analysis: Goshawks generally require small blocks of relatively dense, mature forest for nesting habitat. The standard uneven-aged management prescription in the Forest Connectivity Areas may not automatically provide this nesting habitat. This strategy will assure that some goshawk nesting habitat is retained.

- 7. Strategy: After the initial surveys, pileated woodpecker and goshawk surveys will be conducted every five years to monitor the effectiveness of the Forest Connectivity Areas.**

Analysis: This strategy is part of an adaptive management approach to providing habitat for the indicator species. The target for these two species on the forest will be to maintain at least two pairs of pileated woodpeckers and one pair of goshawks over time. This strategy will ensure the eventual success of the Forest Connectivity Areas, and contribute to the prevention of future listing of these species.

Strategies 2 through 7 will contribute directly to the prevention of future listings of the goshawk and pileated woodpecker as well as other federal Category 2 and state critical sensitive species found in Sun Pass that are dependent on late successional habitat. These are also the strategies that put the forest's habitat contribution in a regional context. These strategies are expected to result in a 4% reduction in first decade harvest volume from the standard uneven-aged prescription. This reduction is well within ODF's policy of allowing modifications of forest management plans that result in volume or value reductions of up to 10% to achieve better wildlife habitat (Oregon Department of Forestry 1989). Harvest levels during later decades will not be affected.

Threatened and Endangered Species

Spotted Owls

- 1. Strategy: Avoid any harvest activity that results in less than 70 acres of the best available suitable owl habitat encompassing the nest site and/or activity center of a pair of spotted owls.**
- 2. Strategy: Avoid any harvest activity that results in less than 500 acres of suitable habitat within a 0.7 mile radius (1,000 acres) of a nest site and/or activity center. The 500 acres may include the 70 acres in strategy 1 above, and should be as contiguous as possible.**
- 3. Strategy: Avoid any harvest activity that results in less than 40% coverage by suitable owl habitat within a circle with a radius of 1.2 miles centered on the nest site and/or activity center. The 40% may include the acreage required in strategies 1 and 2 above.**

Analysis: The three strategies above are taken from the Procedures Leading to Endangered Species Act Compliance for the Northern Spotted Owl, commonly referred to as the rescinded federal Incidental Take Guidelines (USDI Fish and Wildlife Service, 1990). A discussion of this approach is contained in Northern Spotted Owl Interim Plan for ODF Managed Lands Outside the Elliott State Forest (Oregon Department of Forestry 1994). This plan was developed by ODF to meet the requirements of the state ESA and puts spotted owl management on state forests in a statewide perspective. The three strategies above represent one way to deal with owl activity centers. Other strategies may be developed in conjunction with ODFW and USFWS if owl activity centers are found on state forest land. Defining and designating suitable habitat will occur in conjunction with ODFW when activity centers are discovered.

For the known owl activity centers adjacent to Sun Pass State Forest and any activity centers discovered in the future, "take" will be avoided by using the above three strategies unless incidental take is authorized by a 4(d) rule established by USFWS or a habitat conservation plan, or unless other strategies are negotiated with ODFW and USFWS. (See Appendix A, Glossary, for definitions of incidental take and 4(d) rule.)

- 4. Strategy: Spotted owl surveys will be conducted every five years, instead of annually, in Sun Pass State Forest and the Southwest Block to determine if the spotted owl situation is changing over time. The next survey will be conducted during the 1999 survey season.**

Analysis: Three years of protocol surveys failed to locate any activity centers on these lands. The rationale for this strategy is further discussed in the spotted owl subsection of Section III, "Wildlife and Fish." This strategy frees up resources to initiate monitoring of other species of concern such as the goshawk and pileated woodpecker and enables ODF to contribute to the prevention of future listings of these species.

Peregrine Falcons

Forest management activities will not result in take of this species.

Wolverines

Forest management activities will not result in take or appreciably reduce the likelihood of the survival or recovery of this species.

Bald Eagles

- 1. Strategy: Prepare a Site Management Plan that will meet or exceed the Forest Practices Act requirements for any active bald eagle nest sites found on state forest land.**

Analysis: A Site Management Plan would provide detail on how important elements of the site will be protected. This plan would be developed in conjunction with ODFW biologists. No State Conservation Plan exists for this species at this time. The above strategy would ensure that incidental take is avoided as well as ensuring that forest management practices do not appreciably reduce the likelihood of survival or recovery of the species.

Additional Monitoring

- 1. Strategy: Explore opportunities to collect information on other wildlife species using volunteer programs with groups such as the Klamath Basin Audubon Society or Wingwatchers.**

Analysis: This strategy would provide baseline information on which species are currently using the forest. If this information is collected over time it can tell us how communities are changing over time in response to management and can serve as an adaptive management tool. This strategy will contribute to the overall goal of providing habitat for wildlife species appropriate to the pine-dominated ecosystem by providing a tracking mechanism for species other than those for which formal surveys are being conducted.