

Executive Summary



This executive summary covers key points of the *Southwest Oregon State Forests Management Plan*. References are omitted from the summary.

Chapter 1. Place, Purpose, and History: The Southwest Oregon State Forests

The *Southwest Oregon State Forest Management Plan* provides direction for state forest lands in the Southwest Oregon District. These lands are in Josephine, Douglas, Jackson and Curry Counties. Of the district's 18,073 acres, approximately 52% (9,372 acres) are owned by the Board of Forestry, and 48% (8,702 acres) are owned by the Oregon State Land Board. This plan supersedes the *Long Range Timber Management Plan for the Southern Oregon Region State Forests* (Oregon Department of Forestry 1987).

This plan takes a much more comprehensive, multi-resource approach to forest management than previous long-range plans for this region. It presents guiding principles, a forest vision, and resource management goals that set the direction for a new management approach. The plan describes each forest resource and explains the concepts for integrated forest management. Chapter 4 presents the resource management strategies, which are the heart of the plan. The resource management goals and strategies are intended to achieve a proper balance between the resources and achieve the greatest permanent value through a system of integrated management.

Chapter 1 sets the stage for the *Southwest Oregon State Forests Management Plan*, with a brief history of the forests, and a description of state forest planning.

Location — The Southwest Oregon District manages a total of 18,073 acres of state-owned forests. Of this total, 9,372 acres of land are consolidated in southern Douglas and northern Josephine Counties, and are known as the Glendale block. In the context of desired land exchanges, the Glendale block is referred to as the acquisition area. This block is located north of Glendale to Sunny Valley, west of Highway I-5. The remaining 8,702 acres of Common School forest lands are in small blocks in four counties, and are referred to as the scattered parcels. They are located in Curry, Douglas, Jackson, and Josephine counties.

Land ownership — State forests were acquired in different ways, and the two types are owned by different entities within state government. Lands owned by the Board of Forestry are known as Board of Forestry Lands (BOFL). Some state forest parcels were granted to the state by the federal government when Oregon became a state in 1859. These lands are owned by the State Land Board and are known as Common School Forest Lands (CSFL).

Each land ownership has its own set of legal and policy mandates. These mandates are discussed under the heading “State Forest Ownerships” in Chapter 2, and also in Appendix D.

Origin of the state forests — The Oregon Department of Forestry was created in 1911. Its main purpose was to control forest fires, but it was also authorized to acquire forest land to manage. However, the department did not actually acquire any lands until legislative actions in 1925 and 1939 made it more feasible.

Josephine, Douglas and Coos counties donated some of their forest lands to the state. However, southwest Oregon counties also sold forest lands to private timber companies or individuals to keep them on the tax rolls, or kept them to be managed as county forests. Later, parcels of private lands were purchased or donated to become state forests. In 1944, the Windy Creek property (Glendale) along with some other acreage for a total of about 3,600 acres, was deeded to the State of Oregon (Board of Forestry).

Management planning for state forests — Management planning for Oregon state forests involves ~~five main elements~~ three planning levels, and fiscal and biennial budgeting. As shown in the figure below, planning begins with broad-scale, long-range planning, which may include a habitat conservation plan. Intermediate level planning is done at the district level and is documented through district implementation plans (IPs). Annual operations plans and budgets (biennial and annual) are designed to achieve the IP objectives for shorter periods of time (1 or 2 years).

The long-range forest management plan provides overall direction for managing the state forests in the planning area. This plan is guided by legal and policy mandates and administrative rules, which are described in Chapter 1.

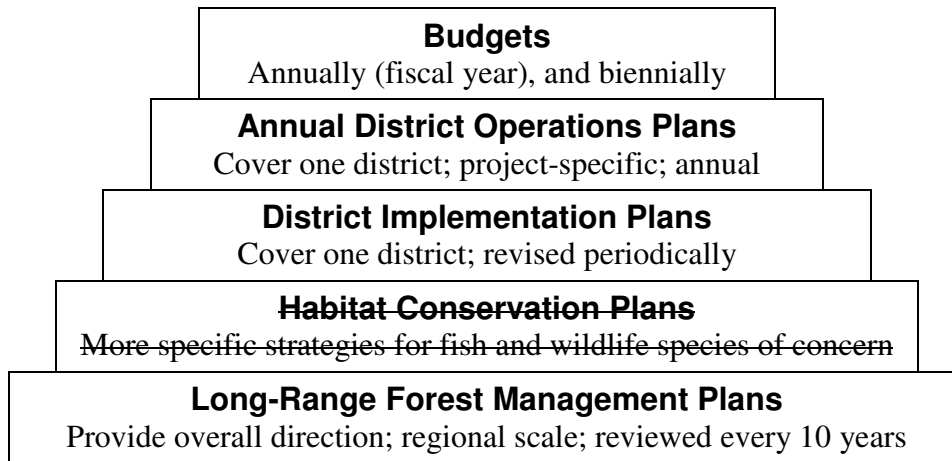


Figure S-1. Five Elements of Planning for Oregon State Forests

Chapter 2. Understanding the Forest: Planning and Resources

This chapter describes the process used to develop this plan, and presents information about the forest resources.

Southwest Oregon state forests planning process — Previous long-range plans for this area were primarily timber management plans. During the late 1980s, there was growing concern about several wildlife species. The northern spotted owl was listed as a federal threatened species in 1990, and the marbled murrelet was listed in 1992, also as a federal threatened species. Recreation use was increasing. In response to these changes, in 1994 the Department of Forestry began work on a comprehensive, integrated forest management plan for the Southwest Oregon state forests.

The planning team included both field and program staff from the Oregon Department of Forestry and the Oregon Department of Fish and Wildlife. The planning team consulted many resource specialists. A steering committee provided policy direction to the core planning team.

The forest management plan includes the following technical elements:

- **Guiding principles** — The overall rules, goals, and responsibilities that guide the planning process.
- **Resource descriptions** — Information about the resource's current status and future trends.
- **Resource management goals** — The goals describe broadly what we would like to achieve through the management of each resource.
- **Resource management strategies** — A set of integrated strategies, including landscape management, aquatic and riparian, and forest health strategies; strategies for specific species of concern; and additional strategies for specific resources.

Public involvement — The planning team began public involvement at the start of forest planning in 1997. The process included public meetings, written comment periods, and informal contacts with interest groups, county commissioners and individuals.

The 2009 plan revision was based on the Board of Forestry's deliberation on the balance of economic, social, and environmental values provided through implementation of the Northwest Forest Management Plan (NW FMP) on the Tillamook and Clatsop State Forests. These adaptive management discussions with the Board led to revisions to both the NW and Southwest FMP. The process included meetings with stakeholders and the Forest Trust Land Advisory Committee, and numerous Board of Forestry meetings where public testimony was heard. Further details on the Board of Forestry work can be found in the meeting materials prepared for each meeting.

This plan requires the approval of both the Board of Forestry and the State Land Board.

Resource descriptions — This section of Chapter 2 provides summary information about the following resources.

- Agriculture and grazing
- Air quality
- Aquatic and riparian resources
- Cultural resources
- Energy and minerals
- Fish and wildlife
- Forest health and biodiversity
- Plants
- Recreation and scenic resources
- Roads and access
- Social and economic resources
- Soils
- Special forest products
- Timber
- Water quality
- Water supply
- Wetlands

Information is summarized very briefly here for some key resources.

Aquatic and riparian resources, water quality – Most Southwest Oregon state forests are located within the Rogue and Umpqua drainage basins. State forest lands represent only a small percentage of any one basin. Water quality is limited on many streams on or downstream from state lands by high summer water temperatures. This may be an historical condition for streams in this region. Water temperatures are an important limiting factor for salmonid fish species.

Fish and wildlife —The Southwest Oregon state forests provide habitats for hundreds of species of fish and wildlife. Of the many wildlife species potentially found on the Southwest Oregon state forests, ~~four~~ three bird species are listed as threatened or endangered under either (or both) the federal and state Endangered Species Acts. Populations of some fish species are also listed.

- **Bald eagle** — Federally and state listed as threatened in Oregon. Currently, there is one known nesting territory on Southwest Oregon state forests and one nesting territory located within 1/4 mile of Southwest Oregon state forests.
- ~~**Peregrine falcon** — State listed as endangered in Oregon. No active nest sites are currently known on state forest lands. There is one known nest site with 1/2 mile of state land.~~
- **Marbled murrelet** — Federally listed as threatened in Oregon. The marbled murrelet is a seabird that nests in mature or old growth coniferous forests within 50 miles of the ocean. Currently, 5,500 acres of Southwest Oregon state lands are considered to be within the inland range of the marbled murrelet.

- **Spotted owl** — Federally listed as a threatened species. There are currently two active pair sites on state forest land, and one inactive site. In recent years, up to 34 owl activity centers have been reported on federal and private lands adjacent to state forest lands. Approximately 95 percent of Southwest Oregon state forest land is within 1.3 miles of an owl activity center on adjacent lands.
- **Fish** — All native salmonid species except chum salmon are present in Southwest Oregon. The federal government has listed some populations of coho salmon, chinook salmon, chum salmon, steelhead trout, and Oregon chub as threatened or endangered species.

Forest health and biodiversity — Fire, windstorms, people, insects, and diseases constantly disrupt forests, injuring and killing trees and other living things. Disturbances are natural and necessary processes of the forest ecosystem and create key habitat features for wildlife and fish. Evaluations must determine what level of change indicates a significant forest health trend, within the context of normal and historical variability. This subsection lists forest health issues that may occur in Southwest forests.

Historically, fire return intervals ranged from ten to forty years in this region. Native Americans burned forested areas regularly to maintain big game habitat for hunting and for other purposes. Early European-American settlers continued the burning to develop homestead farms and ranches. In the early twentieth century, fire protection efforts increased, and most existing forests in the Southwest Oregon District date from that time.

As a result of the fire history, the district's forests have only limited amounts of large down woody debris, and very few older, decayed, down logs. Given the high fire danger that is typical for these forests during the summer, and the increasing risk of accidental fire starts from an increasing population, large amounts of wood on these forest floors may create a significant fire hazard.

In southwestern Oregon, bark beetles are always present in the forest, affecting mostly ponderosa pine and sugar pine. Important diseases include black stain root disease, white pine blister rust, and Port Orford cedar root disease. Dwarf mistletoe, noxious weeds (non-native), and animals may all interfere with tree growth. Non-biological stresses such as wind, drought and cold also damage trees, particularly when tree genotypes or species are planted which are poorly suited to their local environment.

Recreation and scenic resources — Southwest Oregon state forests have light recreational use, mostly hunting. Some lands in the district are within view of two scenic highways and the Rogue River, and are managed to protect scenic values.

Roads and access – State forest roads are a resource and represent long-term capital investments. They must be maintained in usable condition with minimal impacts on other resources such as water quality, soils, and wildlife. Approximately 90 miles of forest roads are located in the district. Roads through federally and privately owned land access a significant portion of state forest land. Approximately 15 parcels currently do not have reasonable access for management activities.

A road survey has recently been completed, and this information will be used to correct inadequate drainage, fish passage, and unstable sites resulting from old road construction. This information will also be used to develop access needs and to determine road closures.

Social and economic resources — Harvests from Southwest Oregon District forests represent only a small share of the region's timber harvests, which are dominated by harvests from federal and private forest lands. Revenue from state forests, almost all of which comes from timber harvest, provides funding for schools and other local governments. Total timber harvest income from Southwest Oregon state forests was over \$3 million during the 1988-1998 period. Total volume harvested in the time period was 18 MMBF.

Chapter 3. Values, Vision, and Goals: Setting the Direction

Chapter 3 presents the guiding principles, forest vision, resource management goals, and monitoring assumptions.

Guiding principles — The plan’s guiding principles are given in Chapter 3. These are the overall rules, goals and responsibilities that guide the process of planning.

1. The plan will recognize that the goal for management of Common School Forest Land is the maximization of income to the Common School Fund over the long term. the goal for management of Board of Forestry Lands is to secure the greatest permanent value to the citizens of Oregon by providing healthy, productive, and sustainable forest ecosystems that over time and across the landscape provide a full range of social, economic, and environmental benefits to the people of Oregon.
2. The plan will recognize that ecosystem restoration and watershed health are among the key goals that this plan must achieve, in a manner that is aligned with the policy direction for Board of Forestry and Common School Forest Lands.
3. The plan will be a comprehensive, integrated forest management plan taking into account a wide range of forest values.
4. The plan will be developed within the context of Southwest Oregon State Forests as managed forests.
5. The plan will acknowledge the protected and recognizable interest of the counties from which most of the Board of Forestry Lands were originally derived.
6. The plan will recognize that the forest is intended to be an important contributor to timber supply for present and future generations.
7. Lands will be identified and managed to provide for a sustained contribution, biological capability, and economic and social values. The plan will recognize that there will be trade-offs between revenue-producing activities and non-revenue-producing activities.
8. The plan will examine opportunities to achieve goals through cooperative efforts with other agencies, user groups, or organizations.
9. Diverse input from a variety of interested parties, including user groups, business interests, adjacent landowners, and the general public will be a high priority throughout the planning process.
10. The plan will be goal-driven.
11. The plan will view Southwest Oregon state forest lands in both a local and regional context.
12. The plan will consider the overall biological diversity of state forest lands, including the variety of life and accompanying ecological process.

13. Southwest Oregon state forest lands will be managed to meet state and federal Endangered Species Acts while fulfilling the Board of Forestry's other statutory responsibilities. Management plans for threatened or endangered species will seek to complement or supplement habitat provided by other landowners to the extent that such provision of habitat is compatible with administrative rules defining greatest permanent value.
14. The Oregon Department of Forestry will be guided by stewardship principles in developing and implementing forest management.
15. The plan will commit the Oregon Department of Forestry to using monitoring and research to generate and utilize new information as it becomes available, and employ an adaptive management approach to ensure that the best available knowledge is acquired and used efficiently and effectively in forest resource management programs.

Forest vision — The forest vision represents an idealized view of the future, without the constraints of the current forest condition. The strategies in Chapter 4 and the implementation plan will describe how the district can move from the current forest condition toward this future forest. The future forest will provide a diversity of forest structures, the range of fish and wildlife habitats necessary for all native species, recreation and other social values, and a sustainable and predictable level of forest products.

Resource management goals — Goals were developed for individual resources, in the context of legal and policy mandates for the management of state forests. The goals are general, non-quantifiable statements of direction. The management strategies in Chapter 4 describe how the Department of Forestry will achieve the goals.

Goals were developed for the following resources: agriculture and grazing, air quality, aquatic and riparian resources, cultural resources, energy and minerals, fish and wildlife, forest health and biodiversity, land base and access, plants, recreation and scenic resources, social and economic resources, soils, special forest products, timber, water quality, water supply, and wetlands. See Chapter 3 for the complete text of the management goals.

Working hypotheses – Scientific understanding about forest systems is substantial, but incomplete. At the center of this plan and fundamental to its adaptive management framework is a set of working hypotheses. These key working hypotheses are described in Chapter 3.

Chapter 4. Concepts and Strategies

Chapter 4 presents the concepts and strategies for a broad, integrated management approach to be implemented on Southwest Oregon state forests. This integrated management approach is designed to generate a range of economic, environmental, and social values from these state forests. This chapter presents an active management approach, and stresses the compatibility of uses.

Basic Concepts for Integrated Forest Management

The strategic approaches described in this chapter are based on scientific research in silviculture and wildlife biology. The basic concepts for integrated forest management focus on:

- Landscape management (structure-based management).
- Aquatic and riparian conservation.
- Forest health.

Landscape management concepts — This plan is based on an approach called structure-based management (SBM). SBM is designed to produce and maintain an array of forest stand structures across the landscape in a functional arrangement that provides for the social, economic, and environmental benefits called for from these state forest lands. These include sustainable timber and revenue, diverse habitats for indigenous species, a landscape level contribution to properly functioning aquatic systems, and a forest that provides for recreational opportunities.

Structure-based management is designed to emulate many aspects of natural stand development patterns and to produce structural components found in natural stands, but in fewer years. By anticipating future patterns of forest development, foresters predict the potential for individual stands to produce specific characteristics such as a multi-layered canopy. Foresters can then develop appropriate silvicultural prescriptions and influence the rates of stand development and the types of structures, products, and habitats that forest stands actually produce.

A diversity of stand structures will provide for a broad range of ecosystems and biodiversity — including a wide range of wildlife habitats. The structural components associated with the range of stand structures will benefit long-term forest productivity by maintaining the key structural linkages for nutrient cycling and soil structure. The high level of biodiversity should result in a more resilient forest that will be less prone to large-scale damage from environmental or human stresses.

Four key concepts are the foundation for landscape management under SBM.

1. Active management for a diverse array of forest stand types.

Most forest stands in southern Oregon are complex and diverse, containing many tree species along with variations in size, age, and density of trees. These more complex structures are not easily identified as being one stand structure or another, and may often be a combination of different structures intermingled throughout. Patchy stand structures are common in older forest types.

The stand type definitions in this chapter provide broad categories for the types of stands on the landscape. They will be used by field managers to categorize existing stands and to describe the desired future condition for the development of stands through time.

The desired stand structure array presented later in this chapter (as part of Landscape Management Strategy 1) emulates the diversity of stand types historically associated with conifer forests in Southwestern Oregon.

Once a desired future condition of stand types is achieved, individual stands on the landscape will continue to change. However, the relative abundance of the different types is expected to remain reasonably stable. At some point decades in the future, a dynamic balance will be achieved of the stand types in a desired array, and individual stands will move in and out of the various types at a relatively even rate.

2. Landscape design to provide for a functional arrangement of the stand types in terms of habitat values.

SBM does not consist only of achieving a specific array of stand types. Landscape planning is necessary to provide for a functional arrangement of the stands, and the forests must also have key structural components. In order to meet these needs, stands will vary in size and exist in a variety of arrangements. Landscape design includes:

- Managing biodiversity — Forest management for biodiversity is implemented at two levels, the forest stand and the broader landscape. At the landscape level, manage for a variety of stands across the landscape, emulating natural patterns. Maintain habitats of species at risk of extinction, and unique ecosystems. Provide adequate interior forest habitats. At the stand level, maintain structural features such as large and old trees, wildlife trees, snags, down wood, vertical and horizontal structure, and herb and shrub communities. Coarse-filter planning provides the foundation for protecting biodiversity. Fine filter habitat requirements are superimposed to ensure that overall biodiversity goals are reached.
- Landscape design principles — Landscape design must consider the following elements: habitat patches at different scales, the matrix or dominant landscape,

fragmentation, landscape composition and pattern, boundaries, corridors, and interior habitat areas.

- Interior habitat area principles — The plan places an initial focus on development of mature forest patches and interior habitat areas (IHAs), since the planning area has a limited acreage of mature forest and IHAs. All patch types are essential if habitats are to be provided for all species.

3. Active management to provide for key structural components within stands and on the landscape (snags, down wood, legacy trees, etc.).

The key structural components within managed forests are:

- Remnant old growth trees
- Residual live trees
- Snags
- Down wood
- Multi-layered forest canopies
- Multiple native tree species (conifers and hardwoods)
- Herbs and shrubs
- Gaps

4. Active management for social and economic benefits.

Structure-based management will require extensive thinning and partial cutting. These activities will produce lower quality timber from young stands. Final harvests of these stands will result in the harvest of high quality wood. Diversified treatments can produce a range of qualities, sizes, and species of logs to match market conditions, as well as special forest products such as mushrooms, berries, or greenery. Recreational and commercial fisheries will be enhanced by aquatic and riparian strategies that maintain and restore properly functioning habitats. The diverse array of stand types and arrangements will also provide many recreational opportunities.

Aquatic and riparian conservation concepts — Riparian and aquatic habitats will be managed to maintain or restore key functions and processes of aquatic systems. Since streams are tightly linked to the landscapes they flow through, riparian and aquatic conditions depend upon the interrelated components of the entire landscape. Landscapes are dynamic: both structure and function change across time and space. Even with change, stability is ensured as long as ecosystem structure and function are maintained within certain bounds and all required components remain within the landscape.

The key concepts for aquatic and riparian conservation are:

- **Management for proper functioning of aquatic systems** — The overall approach in this plan is based on the following key concepts:
 - Native aquatic species have co-evolved with the forest ecosystems in western Oregon.
 - High quality aquatic habitats result from the interaction of many processes, some of which have been greatly influenced by human activity.
 - Aquatic habitats are dynamic and variable, through time and across the landscape.

- No single habitat condition constitutes a “properly functioning” condition. Rather, providing diverse aquatic and riparian conditions over time and space more closely emulates natural disturbance regimes.
- **The blended approach: the effects of landscape ecology on riparian and aquatic habitats** — Aquatic ecosystems interact closely with the surrounding terrestrial systems. Therefore, the health of the aquatic system depends upon forest management practices that recognize, maintain, and enhance the functions and processes that compose these terrestrial-aquatic interactions. This plan uses a blended approach that applies the concepts of landscape ecology to manage riparian and aquatic habitats at both the landscape level and through site-specific prescriptions.
- **Watershed assessment and analysis** — Watershed assessment must be a critical process in implementation of this plan. Watershed analysis will characterize the riparian, aquatic, terrestrial, and cultural conditions, processes, and interactions that affect the overall watershed character, and response to management activities. Watershed analysis is a tool to guide management and policy decisions to the best possible sustainable use of a watershed’s resources, and to restore and/or maintain watershed health and properly functioning aquatic systems.

Forest health concepts — Management actions must consider the effects of disturbance agents, which are a permanent part of the forest ecosystem. By integrating forest health strategies and forest management, we ensure the most options for the future. The key concepts for forest health are:

- **Active management for a diverse and healthy forest ecosystem resilient to biotic and abiotic influences** — High biodiversity provides stability and resiliency to the forest, especially with regard to pests. Strategies to reduce the undesirable impacts of insects, diseases, and other agents must be based in the ecology of these ecosystems and also must be tailored to individual stands, situations, management objectives, and the landscape or regional context. Under this plan, forest health strategies are integrated with forest management.
- **Integrated pest management** — Any pest suppression activities on state forest lands must adhere to the principles of integrated pest management (IPM). IPM is a coordinated decision-making process that uses the most appropriate of all reasonably available means, tactics, or strategies, blended together to minimize the impact of forest pests in an environmentally sound manner to meet site-specific management objectives.

Resource Management Strategies

The resource management strategies are the heart of this plan. This chapter also describes adaptive management measures for the strategies, including key working hypotheses and key assumptions/questions to be addressed through monitoring. The strategies are presented under the following headings.

- Integrated forest management strategies

- Landscape management strategies
- Aquatic and riparian strategies
- Forest health strategies
- Strategies for specific species of concern
- Strategies for specific resources

Integrated Forest Management Strategies

The integrated strategies are the basis for managing the forest landscape as a whole. These begin with four landscape management strategies, which are the core of structure-based management. The landscape management strategies are supplemented by riparian and aquatic strategies, and forest health strategies. Together, this set of integrated strategies will apply across the landscape. They will contribute to a range of habitats that is likely to accommodate most wildlife species, and encourage broad forest biodiversity.

It will take many decades to produce the desired forest, riparian, and instream conditions. Over the short term, the integrated strategies may not provide the short-term habitat needs necessary contribution of some species on state forest lands to the maintenance or recovery of threatened, endangered, or sensitive species. When necessary to provide short-term habitat considerations for wildlife and fish species of concern, additional conservation tools may be used. ~~To assure habitat for wildlife and fish species of concern, development of the *Western Oregon State Forests Habitat Conservation Plan (HCP)* under the federal Endangered Species Act is also underway. This proposed HCP would cover all northwest and southwest Oregon state forests except for the Elliott State Forest (which has a separate HCP).~~

Landscape Management Strategies

1. **Actively manage the state forest landscape and forest stands to produce the desired future array of stand structure types and produce sustainable timber and revenue.**

The percentages in the table below are intended to describe the direction to move the forest. They describe a long-range desired future condition, described with upper and lower limits as well as a mid-range percentage that is used for technical analysis. There is no specific timeframe for achieving the array described.

Table S-1. Stand Structure Types: Percent of the Landscape

Regeneration	5-20 percent (10% used for analysis)
Closed Single Canopy	35-55 percent (45% used for analysis)
Understory	5-15 percent (10% used for analysis)
Layered	10-20 percent (15% used for analysis)
Older Forest Structure	10-30 percent (20% used for analysis)

The percentages in Table S-1 assume that such an array of stand types, properly arranged on the landscape, will contribute to the habitat needs of all native species.

The Department of Forestry will conduct ~~An ongoing comprehensive~~ review of this strategy ~~through adaptive management and the specific array described when 30% in aggregate of layered and older forest structure stands is achieved on lands in the planning area.~~ This review will evaluate the extent to which stand conditions meet the habitat needs of native species, and whether additional layered and older forest structure stands are needed to meet that goal.

2. Develop a landscape design that arranges the forest stand types to create a variety of patch types, patch sizes, and patch placement on the state forest landscape over time.

The district implementation plan will develop a landscape design consistent with the landscape design guidelines described under this strategy in Chapter 4. The application of these principles and guidelines will be discussed in the landscape design section and desired future condition display contained within the district implementation plan. The design will describe or display how stand types will be arranged on the district landscape, in a regional context, to achieve the variety of patch types, sizes, and arrangements necessary to provide functional habitat for the covered species.

3. Actively manage the state forest landscape to incorporate structural habitat components into the forest at a landscape level.

This strategy presents approaches for managing the habitat components listed below. These standards are meant to be general guidelines for forest managers. It is understood that individual stands may exceed or may fall below these standards, but it is expected that on a landscape-wide basis, stands will average the habitat conditions outlined by these standards. Chapter 4 gives numerical standards and/or qualitative guidelines for these components.

- Remnant old growth trees
- Residual live trees
- Snags
- Down wood
- Multi-layered forest canopies
- Multiple native tree species (conifers and hardwoods)
- Herbs and shrubs
- Gaps

4. Develop an implementation plan for the district that provides more specific information on the application of Landscape Management Strategies 1 through 3, for a ten-year period.

A district implementation plan will be developed that contains more detailed information describing how the district is moving towards achievement of the desired future condition, implementing the landscape design guidelines, and providing for the structural habitat components at the landscape level.

Aquatic and Riparian Strategies

The landscape level component of the blended approach is comprised of the landscape management strategies just described. Over time, the application of these strategies is intended to create forest conditions on the landscape that will more closely emulate historic conditions and processes relative to aquatic systems.

The second component of this blended approach is a set of more site-specific or prescriptive strategies designed to protect key resource elements or provide for specific functional elements not necessarily addressed by the landscape strategies.

Finally, watershed assessment and analysis is an overarching strategy designed to collect and synthesize key watershed information that will be used to further evaluate the two components of this blended approach.

In addition to the landscape management strategies, there are seven strategies for aquatic and riparian areas.

- 1. Implement watershed assessment and analysis** — Watershed assessment and analysis will be used to collect needed information at both watershed and site-specific levels, and to synthesize that information into recommendations for appropriate changes to goals and strategies. Information from watershed assessments and other inventory and assessment projects will be used in an adaptive management framework to accomplish plan objectives.

This strategy involves development of a comprehensive watershed assessment and analysis process for state forest lands; completion of assessments and analyses on priority watersheds on state forest lands within ten years following plan adoption; cooperation with local watershed councils and adjacent landowners; and effective application of results at the appropriate planning level through the adaptive management process.

- 2. Apply management standards for aquatic and riparian management areas** — Establish and maintain riparian management areas adjacent to all streams, in accordance with ~~the standards described in the proposed *Western Oregon State Forests Habitat Conservation Plan*~~ Appendix C of this plan, and species of concern strategies where they apply.

Riparian management areas will contain four zones: the aquatic zone, stream bank zone, inner RMA zone, and outer RMA zone. Determination of the applicable management standards is based on a stream classification system. Streams are grouped based on the presence or absence of certain fish species (Type F or Type N), and by size (estimated annual average flow). Small non-fish-bearing streams (Type N) are further classified according to flow pattern in normal water years, as perennial or seasonal. Some seasonal Type N streams are seasonal high energy streams or potential debris flow track reaches.

- 3. Restore aquatic habitats** — Complete assessments to identify potential factors that could be contributing to undesirable aquatic habitat conditions, or that could be limiting the recovery of aquatic habitats. Road inventories and risk assessments, and aquatic habitat inventories, will contribute to this strategy.

Identify, design, and implement projects to remedy identified problems in a timely manner. Criteria and guidelines are specified for this strategy in Chapter 4.

- 4. Alternative vegetation treatment in riparian areas** — The term “alternative vegetation treatment” refers to the application of silvicultural tools and management techniques in riparian management areas, using standards that differ from general riparian management standards, for the purpose of changing the vegetative community to better achieve the plan’s aquatic and riparian habitat objectives.

Potential projects include silvicultural treatments such as the conversion of hardwood stands to conifer species, selective removal of hardwoods from mixed-species stands and the establishment of shade-tolerant conifer seedlings, the creation of gaps in hardwood stands to establish conifer seedlings (shade-intolerant and shade-tolerant), or other similar practices not specifically described in the management standards for riparian areas. These projects will be implemented in a way that maintains diverse riparian plant communities (heterogeneity) at the landscape and basin scales, and that minimizes the potential for adverse effects to aquatic resources, including depressed salmonid populations.

- 5.—Other aquatic habitats: wetlands, lakes, ponds, estuaries, bogs, seeps, and springs** — The management objectives for these waters are generally similar to the objectives for streams, but the specific prescriptions are sometimes different. The strategies for other aquatic habitats will maintain the productivity of these habitats, maintain hydrologic functions, and contribute to conditions needed for maintaining other native wildlife species of concern. The prescriptions for other aquatic habitats are presented in Tables 6C-3 and 6C of Appendix C-4 in Chapter 6 of the proposed HCP.

5.

- 6.Slope stability management** — The Department of Forestry will use a three-level approach to manage slope stability concerns in forest planning and operations on state forest lands in the planning area. ~~This approach is described in more detail in the proposed *Western Oregon State Forests Habitat Conservation Plan*.~~

6.—

- 7.—**This strategy involves utilizing watershed assessment to assess landslide hazards; evaluation of alternatives to minimize, mitigate for, or avoid risk in high and moderate hazard areas; and design of operations to minimize, mitigate for, or avoid identified risks.

7.6.

- 8.7.Forest road management** — The road system will be managed to keep as much forest land in a natural, productive condition as possible; prevent water quality

problems and associated impacts on aquatic resources; minimize disruption of natural drainage patterns; provide for adequate fish passage where roads cross fish-bearing streams; and minimize exacerbation of natural mass-wasting processes.

This strategy will be accomplished by completion of a comprehensive inventory of existing roads on state forest lands; development and updating of district implementation plans and transportation planning; forest road design, construction, improvement and maintenance in accordance with processes and standards in the *Forest Roads Manual*; and identifying and prioritizing roads for closure and/or abandonment.

Forest Health Strategies

There are seven forest health strategies. The components of these strategies and guidelines are given in Chapter 4.

- 1. Actively manage the forest to maintain or improve forest health.**
- 2. Manage the forest to minimize unwanted fire.**
- 3. Detect and monitor pest populations, damage levels, and trends.**
- 4. Use the Integrated Pest Management (IPM) process to implement suppression or prevention actions when pest populations or damage exceed acceptable levels.**
- 5. Assess and manage forest genetic resources.**
- 6. Participate in research and cooperative programs that align with our management objectives, to improve our knowledge and actively enhance forest health and biodiversity.**
- 7. Cooperate with other agencies and associations to prevent the introduction of non-native pests.**

□ Strategies for Specific Species of Concern

The integrated management strategies are intended over time to result in habitat conditions on the landscape and in aquatic and riparian areas that will provide functional habitat conditions for native species. As described, these more diverse and potentially functional habitats will take many decades to create. While moving the landscape toward a more diverse habitat condition, additional conservation tools will be considered where determined necessary for individual species. These species are referred to as “species of concern” and are fish and wildlife species that have been identified as being at risk due to declining populations or other factors (e.g., having a limited range).

~~For individual species of concern, including salmonids, northern spotted owls, marbled murrelets, and other sensitive species, additional strategies focus on short term protection of special habitats. These strategies would provide a higher short term level of protection to existing key habitat areas for these species, and would fulfill state and federal Endangered Species Act obligations for Southwest Oregon state forests. This plan and the~~

~~proposed Western Oregon State Forests Habitat Conservation Plan contain strategies intended to protect existing key habitat areas and/or sites considered critical to the short-term survival of individuals or populations.~~

~~The HCP details specific strategies for other species of concern, including bald eagle, peregrine falcon, northern goshawk, fisher, Townsend's big-eared bat, Cascades frog, and western pond turtle.~~

□ Strategies for Specific Resources

Chapter 4 also includes strategies for specific resources, listed below.

- Agricultural and grazing resources
- Air quality
- Cultural resources
- Energy and minerals
- Land base and access
- Plants
- Recreation
- Scenic resources
- Soils
- Special forest products

Chapter 5. Implementation and Monitoring

Chapter 5 describes guidance and standards for processes and activities that will be undertaken to implement the strategies.

Implementation guidelines — This section describes who is responsible for implementing the plan, and how implementation will be carried out. It discusses responsibilities, plan scope, plan duration, implementation levels based on funding, implementation plans, annual operations plans, and the team concept in implementation.

Asset management — Assets are defined as the tangible resources and infrastructure on state forest lands.

- The total value of standing timber on the Southwest Oregon state forests is currently estimated at approximately \$162 million.
- Hunting and fishing have local and regional economic benefits.
- The streams and rivers that flow from the Southwest Oregon state forests are water sources for municipal water systems, domestic water systems, agricultural uses, and fish hatcheries. In addition, these waterways support fish and recreation.
- Currently, there are approximately 90 miles of active forest roads on the Southwest Oregon state forests. These roads and their related infrastructure such as culverts and bridges contribute to the overall asset value.
- The value of these state forests is also expected to increase, in terms of their increasing ability to provide diverse wildlife habitats, properly functioning aquatic systems, high water quality, and outdoor recreation.

Adaptive forest resource management — Adaptive management is an approach to resource assessment and management that explicitly acknowledges uncertainty about the outcomes of management policies, and deals with this uncertainty by treating management activities as opportunities for learning how to manage better. This section describes the concept and process of adaptive management, the importance of research and monitoring for obtaining information necessary for decision-making, the role of stakeholders in adaptive management, and the process for dealing with changes in policies and practices when needed.

Adaptive management concepts — In state forest management, adaptive management is defined as a scientifically based, systematically structured approach that tests and monitors management plan assumptions, predictions, and actions, and then uses the resulting information to improve management plans or practices. Through the application of adaptive management techniques, the Department of Forestry will continually improve management policies and practices by learning from the outcomes of operational programs. Adaptive management requires managers and decision-makers who are willing to learn by doing, and who acknowledge that making mistakes is part of learning.

Adaptive management will include public participation, in order to identify and incorporate public concerns and values into the process.

Monitoring — Monitoring is a key element in this plan. Information from monitoring and research will be used to assess resource conditions, ecological and cultural trends, success in carrying out the strategies, the effects of the strategies on resources, and the validity of the working hypotheses.

At first, the Department of Forestry will emphasize implementation and effectiveness monitoring — are we doing what we said we would do, and is it working? Over time, the department will also do validation monitoring — are the underlying assumptions of the management strategies correct?

Effecting change — As new information becomes available, changes could be made in strategies, approaches, and prescriptions. This section includes guidelines on making changes at various levels.