Findings and Recommendations

Terrestrial

Introduction

The following findings and recommendations apply mostly to federal lands. Significant findings and recommendations that apply to private lands are underlined. For the purposes of this analysis, the Analysis Area is defined by the Lower and Middle North Santiam watersheds.

Findings:

Terrestrial Finding #1- Late Successional (mature and old-growth) Forest Habitat: The amount of late successional forest habitat is limited in the Analysis Area. The analysis of current conditions shows late successional comprises three percent of the Lower North Santiam Watershed and 17 percent of the Middle North Santiam Watershed. For the two watersheds combined, nine percent is late successional. About one percent of the Analysis Area is in old-growth over 200 years old. For federal lands, the amount of late successional is considerably higher at 36 percent. Three percent of federal lands are old-growth forests.

The amount and quality of late successional forest was further analyzed by sub-watershed basin (SWB). In the Lower North Santiam Watershed, 77 percent of the late successional is located in the Stout Creek SWB. In the Middle North Santiam Watershed, 60 percent are in the Middle (Mad Creek) and Rock Creek SWBs.

In the long term, as Riparian Reserves on federal lands, older forest structure and layered stands on state lands, and OFPA buffers on non-federal lands mature, the entire Analysis Area has the potential to support 13 to 15 percent late successional habitat under current management. There would be an increase in the amount of late successional habitat across the watershed, primarily due to the restoration of state and federal lands into late successional, older forest structure and layered stands over time.

There is a large difference in the amount and distribution of late successional forest between the Lower and the Middle North Santiam watersheds. This divergence between the two watersheds is expected to become more pronounced as state and federal lands in the Middle North Santiam mature over time. The amount of state and federal lands in the Lower North Santiam is less than four percent, which is not enough to contribute significantly to the amount of late successional habitat in the watershed over time. In the long term, the Lower North Santiam is likely remain at three percent or less late successional, whereas the amount of late successional in the Middle North Santiam would approach 25 percent Due to the small total percentage of federal lands in the Lower/Middle North Santiam Watersheds (less than 6 percent), there are limits to how much federal lands can contribute to late successional forest habitat over time.

Terrestrial Finding #2 - Standing Dead/Down Coarse Woody Debris (CWD): There is a shortage of standing dead/down CWD habitat, especially larger material in the early stages of decay. Estimates show that the amount of standing dead/down CWD are below *Northwest Forest Plan* (NFP) and *Salem District Resource Management Plan* (RMP) standards. Over the long term, the amount of standing dead material on federal lands is expected to approach NFP standards as late successional forest matures in riparian reserves and green tree retention guidelines are implemented. There would be an increase of standing dead/down CWD on private/state lands as relatively new OFPA requirements continue to be implemented.

Terrestrial Finding #3 - Special Habitats: Two significant special habitat complexes are located in the Lower/Middle North Santiam watersheds. Stout Mountain on private lands is one. Monument Peak, the other significant complex area, is on BLM, state and private lands. Other special habitat features are found scattered throughout the Analysis Area, among them are Lyons wetlands, and Kingston Prairie. One Area of Critical Environmental Concern (ACEC) is located in the Lower North Santiam Watershed. The North Santiam ACEC is on BLM lands in the Upper (Valentine/Trask) North Santiam SWB. Other special habitat areas occur in the vicinity of Rocky Top and Mount Horeb.

Terrestrial Finding #4 - Willamette Valley Habitats: A fairly large portion of the analysis Area is on private lands within the Willamette Valley Physiographic Province. A number of bird species that are considered to be Willamette Valley habitat specialists are known or are suspected to occur on non-federal lands in the watershed. These species include the yellow-breasted chat, grasshopper sparrow, vesper sparrow, and western meadowlark. They prefer native Willamette Valley habitats such as grasslands and riparian areas along larger streams and rivers.

Two Bird Conservation Areas (BCAs) have been identified in the Analysis Area, according to the *Conservation Strategy for Landbirds in Lowlands and Valleys of Western Oregon and Washington* (American Bird Conservancy, Appendix C, March 2000). The Kingston grassland BCA was identified in the Kingston area, and the surrounding area south of the city of Stayton. Within this BCA is Kingston Prairie, a native prairie 145 acres in size, owned by the Nature Conservancy (TNC). A Riparian BCA was identified along the North Santiam River in the vicinity of Stayton Island on private and BLM lands. There are a number of secondary/side channels in this reach of the North Santiam with associated wetlands and riparian vegetation, including gallery woodlands of black cottonwood.

The purpose of the BCA concept is to focus conservation efforts on priority habitats and focal land bird species. Under the Conservation Strategy, non-federal landowners can pursue cooperative agreements and funding to maintain, improve, restore and/or protect native Willamette Valley habitats, especially in BCAs. Cooperative programs and funding opportunities are described in the Implementation Section, Chapter 9, of the *Conservation Strategy for Landbirds in Lowlands and Valleys of Western Oregon and Washington*. A number of voluntary programs are available to private landowners which provide financial and technical assistance. Programs include those administered by the U.S. Department of Agriculture under the 1996 Farm Bill, the Wildlife Habitat Conservation and Management Program administered by Oregon Department of Fish and Wildlife, and matching funds provided by private foundations such as the National Fish and Wildlife Foundation.

Noxious weeds and invasive non-native plants have become serious concerns in many special habitat areas, especially those at lower elevations in the Willamette Valley such as Stout Mountain and Kingston Prairie. The Nature Conservancy has been actively working towards acquiring and managing the prairie habitats associated with the Kingston Prairie Preserve. These habitats are critical to maintain and manage for several rare plants and animals. Habitat maintenance and improvement projects such as control of encroaching shrubs, trees and invasive exotic species should continue to be pursued at this site.

Terrestrial Finding #5 - Road Densities: Road densities are high across the Analysis Area, especially in the Middle North Santiam Watershed, and on federal lands. In the Lower North Santiam Watershed, there are 415 miles of road on all ownerships. The average total road density is estimated at 3.6 miles per square mile. The highest road densities occur in the Stout and Valentine/Trask SWBs.

In the Middle North Santiam Watershed, 475 miles of road exists on all ownerships. The average road density is estimated at 5.4 miles per square mile. Road densities exceed 5 miles per square mile in all SWBs, with the exception of Rock Creek, where road densities are 4.3 miles per square mile.

Of the 890 road miles in the Lower/Middle North Santiam watersheds, 62 miles are on federal lands (7%). Road densities on federal lands are estimated to be five miles per square mile, which is high. Road densities on federal lands are highest in the Stout and Fox Valley SWBs (more than five miles per square mile). The Valentine/Trask, Mad Creek, Rock and Sevenmile SWBs have road densities between four and five miles per square mile.

Terrestrial Finding #6 - Special Status/Special Attention Plant Species: Seven rare plant species are known to occur in the Willamette Valley ecoregion of the North Santiam Watershed. All of the known populations of Willamette Valley endemic plant species occur on non-federal lands in the North Santiam Waterhsed. Maintenance of The Nature Conservancy's Kingston Prairie Preserve is an essential part of the future recovery of *Lomatium bradshawii*, a federal endangered species. In addition to providing habitat for *L. bradshawii*, this preserve along with neighboring federal and non-federal parcels also provide high quality habitat for several other rare animals and endemic plants.

The majority of the other known populations of special status plants in the North Santiam Watershed are found in the Willamette Valley along roadsides and private lands where management is extremely variable. Many of these occupied habitats are suffering from encroachment by invasive exotics or native shrubs and trees. Where roadside rare plant sites are subjected to very intensive management, it usually results in an inadvertent negative impact or extirpation of that particular population.

Potential and occupied *Bridgeoporus nobilissimus* (noble polypore fungus) habitat is limited to the Monument Peak area in the North Santiam Watershed. The future of the known population is uncertain because its current host substrate is decaying and it is unknown if other noble fir stumps or trees in the area support *B. nobilissimus* too. Life history requirements of *B. nobilissimus* are not well understood.

Terrestrial Finding #7 - Noxious Weeds: Noxious weeds and invasive exotic species are present on all kinds of ownerships and habitats within the North Santiam Watershed. These infestations are along roadsides, riparian areas, crop lands, pastures, special habitats, and young forest plantations. They do not respect property lines and most infestations eventually involve multiple ownerships and land managers.

Noxious weeds and invasive non-native plants have become serious concerns in many special habitat areas, especially those at lower elevations in the Willamette Valley such as Stout Mountain and Kingston Prairie. Scotch broom and Himalayan blackberries are particularly widespread throughout the lower elevations of the watershed.

To successfully manage noxious weeds and invasive exotic species, cooperative management efforts and partnerships are necessary. A focus group has formed to initiate a Willamette Basin Invasive Weed Management Partnership which would be open to participation for land managers and owners in the North Santiam Watershed. If this partnership is successful, it will promote the development and funding of local weed boards, including Linn and Marion counties and programs.

Terrestrial Finding #8 - Special Status/Special Attention Animal Species: There is one Survey and Manage mollusk species documented to occur in the Middle North Santiam Watershed, the Oregon megomphix *(Megomphix hemphilli)*, a snail. The red tree vole, a Survey and Manage species, has been documented to occur in the Middle North Santiam Watershed.

Four bat species identified in the NFP as species in need of additional protection are highly likely to occur in the Lower/Middle North Santiam watersheds. They are the silver-haired bat, long-legged myotis, long-eared myotis, and pacific western big-eared bat.

Thirteen additional Bureau and/or Forest Service Sensitive species have been documented or are suspected to occur in the watershed. These include the red-legged frog, western pond turtle, harlequin duck, peregrine falcon, goshawk, common nighthawk, Lewis' woodpecker, purple martin, yellow-breasted chat and western meadowlark

Terrestrial Finding #9 - Bald Eagles: One bald eagle nest site in the Lower North Santiam Watershed near the confluence of the Santiam River with the Willamette River is known. The pair utilize the Santiam and the Willamette rivers for foraging. Bald eagles have been observed in multiple locations along the North Santiam River during the nesting season. They appear to be most common in the vicinity of Big Cliff Dam, and near the confluence in the Willamette Valley. Bald eagles seen during the nesting season at Big Cliff Dam are thought to be birds nesting in the Detroit Lake area, east of the Middle Santiam Watershed. In addition, there have been several sightings in the vicinity of Stayton Island. To date, a nesting pair has not been confirmed in the area.

There are no bald eagle concentrations or winter roosts in the Lower/Middle North Santiam watersheds. Bald eagles are present in small numbers as migrants and winter visitors. Wintering birds are thought to be the local birds that nest in the vicinity. A number of birds winter at Ankeny Flats, just north of the lower Santiam River and near Big Cliff Dam and Detroit Lake.

There is limited potential suitable bald eagle nesting habitat on BLM lands in the vicinity of Fishermen's Bend in the Lower (Fox Valley) SWB. Ospreys are known to nest in the vicinity. Bald eagles have only been observed there during the winter months.

Terrestrial Finding #10 - Nesting Spotted Owls/Habitat: Approximately 18 percent of the Cascades portion of the Analysis Area is considered suitable habitat for spotted owls. Approximately 37 percent of federal lands in the Cascades portion of the Analysis Area is considered to be suitable habitat. Of the five known spotted owl sites (KOSs) with site centers in the Analysis Area, one was found to be marginally viable, where occupancy and reproduction appear to be stable. Another site was found to be very limiting. The other three were found to be non-viable. The number of barred owl sightings in the Analysis Area has increased in recent years. They have been documented in every SWB in the Cascades portion of the Analysis Area, and have been confirmed as nesting in the Lower (Fox Valley) SWB.

Overall, habitat conditions for spotted owls is expected to improve in the long term. Viability could improve in the vicinity of existing KOSs, due to the development of older forest structure and layered stands on state lands in the Rock Creek and Mad Creek basins. The number of barred owl sightings in the Analysis Area are expected to continue to increase as nesting pairs produce young. In the future, barred owls will likely be confirmed as nesting in other SWBs.

About two thirds of the Cascades portion of the Analysis Area is functional as dispersal habitat. Approximately 73 percent of the federal lands in the Cascades portion of the Analysis Area is functional as dispersal habitat. The Analysis Area is viable for spotted owl dispersal; however, movement within the Analysis Area is inhibited by the North Santiam River Corridor. Spotted owl dispersal outside the Analysis Area is limited by the lack of dispersal habitat to the north in the Lower Little North Santiam, to the south in Thomas Creek and the Willamette Valley to the west. The most significant lands in the Analysis Area for spotted owl movement are the federal and state lands in the Middle North Santiam Watershed, which provide for dispersal of spotted owls to/from the predominant north-south LSR/wilderness network to the east, where the majority of dispersal between known spotted owl sites in the Cascades Range takes place. The Analysis Area will continue to be viable for spotted owl dispersal in the long term. There is no Critical Habitat for the northern spotted owl in the Analysis Area.

Recommendations:

Terrestrial Recommendation #1 - Density Management/Thinnings (Findings #1, 2, and 10): Timber harvest on federal lands should emphasize enhancement and restoration opportunities that target stands in Riparian Reserves, LSR, and Connectivity lands (CONN) that have been managed primarily for timber in the past. Implement density management prescriptions to develop and maintain late successional forest stand characteristics. Desirable stand characteristics include larger trees for a large green tree component and recruitment of large standing dead/down coarse woody debris in future stands, multi-layered stands with well developed understories, and multiple species that include hardwoods and other minor species.

General Criteria for Density Management/Thinnings: Density Management would be prescribed primarily in mid-successional stands in the stem exclusion stage to encourage the development of late successional conditions. Priorities for density management to accelerate the development of late successional forest conditions would be high in riparian reserves, LSR, and CONN. Objectives in all stands would be to develop and maintain late successional forest conditions, meet Aquatic Conservation Strategy (ACS) Objectives and maintain and enhance existing habitat for the spotted owl.

Recent research suggests stand growth and structural responses begin about five years after density management treatments in the Oregon Coast Range (Chan, unpublished, 2001). Residual treatment levels of 100, 60 and 30 trees per acre were installed along with a control unit. The 100 tree per acre retention was comparable to an operational commercial thinning. In the 30 and 60 tree per acre retention treatments, diameter growth was greater than that which occurred in the control and 100 tree per acre retention treatments. The growth response in the 30 tree per acre retention treatment was proportionately greater than the 60 tree per acre retention treatment. Crown response was greater in the 30 and 60 tree per acre retention treatments than in the control and 100 tree per acre retention treatments. The crowns developed better structure by thickening, lengthening and expanding. This crown development results in better vertical structure, large limbs and platform branches that are important habitat structures for wildlife. Crown growth continued after treatment until crown closure was similar to the 100 tree per acre retention treatment. These growth responses are expected to continue with anticipated growth reductions beginning at age 12, when additional thinnings may be necessary to allow enough light for the development of understory canopy layers. The North Santiam watershed is in the Oregon Cascades, which has a lower growth productivity than the Oregon Coast Range. Similar kinds of growth responses can be expected in the North Santiam Watershed, but they are anticipated to begin later, be of lesser magnitude and last longer than those in the Oregon Coast Range.

Density management treatments should be done with caution in stands experiencing moderate infestations of Swiss needle cast (SNC) or drainages where there is a high incidence of this disease. Caution is advised in SNC infected areas because one 30 tree per acre retention treatment in a highly infected area of the Oregon Coast Range resulted in greatly reduced tree growth because of accelerated SNC development. SNC infections can reduce diameter and height growth because of decreased photosynthetic ability due to the loss of older needles. Severe SNC infestations may result in near cessation of Douglas-fir growth, or mortality from competition by non-susceptible species, pathogens or insects and sometimes directly from the disease itself. Initial indications in the Coast Range are that stocking levels greater than 60 trees per acre may allow stand development with minimal growth reductions.

Additional Criteria for Density Management/Thinnings:

In young stands less than 30 years of age generally having less than commercial diameters, additional criteria for identifying and implementing projects include:

a. Use a range of residual tree densities. Consider creating small isolated openings, less than 1/4-acre in size, over less than 5 percent of the area, and leaving 10 percent unthinned .

b. Stocking control: Highest priority are overstocked even-aged stands in excess of 250 dominant/co-dominant trees per acre or 20 percent over target levels of 200-250 trees per acre.

c. Species composition control: favor minor species including hardwoods by increasing growing space around them.

d. Retain developing understories that do not interfere with the development of dominant and co-dominant trees in the stand.

e. Standing dead/down CWD recruitment: retain enough green tree capital for recruitment in future stands.

f. Identify stands for treatment through GIS queries, aerial photo interpretation, stand exams, riparian surveys and/or stocking surveys.

g. These projects could be implemented through jobs-in-the-woods or accomplished collaterally with timber stand improvement projects on GFMA and/or CONN lands.

In 30 to 80 year old aged stands where dominant trees are generally less than 20" dbh. These age classes generally provide the greatest opportunities for acceleration of tree diameter growth and understory development through density management. Criteria for identifying projects include:

a. Maintain an average of 40 to 50 percent crown closures. Use a wide range of residual tree densities. Density management treatments leaving 30 to 60 trees per acre residual stocking should occur over 5 to 15 percent of the area. Consider creating small isolated openings, less than 1 acre in size, over 5 to 15 percent of the area, and leaving 10 percent unthinned.

b. Stocking control: Highest priority are overstocked even-aged stands of over 40 Relative Density (Curtis, 1982). Relative Density is a measure that estimates density of stands using stand basal area and tree diameters.

c. Species composition control: maintain minor species in treatment areas including hardwoods.

d. Enhance developing understories where present by reducing overstory stocking to allow for their growth; several treatments may be required if understories are to survive to reach mid and upper canopy levels.

e. Understories can be developed by natural regeneration, planting in openings or beneath density management treatments.

f. Standing dead/down CWD recruitment: retain enough green tree capital for recruitment in future stands. Consider creating smaller standing/down dead material to meet criteria as outlined in Recommendation #2 and the LSRA.

g. Lightly stocked areas and openings created by *Phellinus weirii* infections can be treated where canopy closure is less than 40 percent. Timber harvesting followed by site preparation may occur. Native disease resistant conifer and/or hardwood species can be planted. Highest priority for disease treatment would be on GFMA lands.

h. Identify stands for treatment through GIS queries, aerial photo interpretation, stand exams, riparian surveys and/or stocking surveys.

i. These projects can best be implemented through commercial timber sales. Logs may be removed, provided standing dead/down CWD recruitment goals and ACS objectives are met.

Mature stands 80 to 150 years of age: Density management treatment of stands over 80 years of age is expected to be rare. Such stands would normally qualify as late successional forest habitat suitable for the spotted owl. However, age is a less important factor than the forest structure present. Late successional characteristics may be lacking in some stands due to timber management activities in the past which simplified forest structure. Past timber management practices such as commercial thinning from below, and salvage operations targeting dead, down and dying trees may have removed important elements of late successional forest and habitat suitable for the spotted owl. High stocking levels may delay the attainment of late successional forest conditions in some stands due to small tree sizes and poor understory development.

In stands where late successional characteristics are lacking, treatment to create structure and/or reduce high stocking levels could occur. The primary objectives of such treatments would be to create standing dead/down CWD, develop layering of understory vegetation and increase diameter growth and structure of the residual trees. Commercial timber sales would not occur in stands over 80 years of age in LSR. Criteria for identifying projects in non- LSR stands include:

a. Enhance suitable spotted owl habitat conditions. Variable density management treatments could occur in previously managed for timber production, to create more natural, late successional conditions, where elements of suitable habitat for spotted owls are lacking.

b. Highest priority are single story overstocked even-aged stands that lack components of late successional structure, such as standing dead/down coarse woody debris, large limby/cull trees, and multilayered canopies, and do not qualify as habitat suitable for the spotted owl.

c. Species composition control: Manage for species diversity in treatment areas.

d. Enhance developing understories where present by reducing overstory stocking to allow for their growth.

e. Understories can be developed by natural regeneration or planting in openings or beneath density management treatments.

f. Create enough large, hard material to achieve standing dead/down coarse woody debris criteria (see Recommendation #2). However, if too many large Douglas-fir trees are felled for coarse woody debris recruitment, colonization with Douglas-fir beetle could become a concern and beetle populations could become high enough to cause mortality in adjacent live trees. Large material could be created adjacent to streams for recruitment

as large woody debris and/or placed in streams.

g. Openings created by *Phellinus weirii* infections can be treated where canopy closure is less than 40 percent Timber harvesting followed by site preparation may occur provided standing dead/down coarse woody debris recruitment goals are attained. Native disease resistant conifer and/or hardwoods can be planted. Highest priority for disease treatment would be on GFMA lands.

h. Identify stands for treatment through GIS queries, aerial photo interpretation, stand exams and/or riparian surveys.

i. These projects can best be implemented through commercial timber sales or topping/falling contracts to create standing dead/down CWD. Logs may be removed provided standing dead/down coarse woody debris recruitment goals are met.

Terrestrial Recommendation #2 - Standing Dead/Down CWD (Findings #1, 2, and 10): Implement NFP and Salem District RMP standards and guidelines for green tree retention for the recruitment and development of standing dead/down CWD and to contribute to the development of late successional forest stand characteristics. Protect existing material and leave additional green trees in future harvest units to make up for deficiencies in current conditions.

Criteria: For **GFMA and CONN**, leave trees should be over 12 inches dbh and represent the current range of conifer species, size and diameters. In GFMA, leave 6 to 8 green trees per acre; and in CONN, leave 12 to 18 trees per acre for recruitment of standing dead/down CWD and development of a large green tree component in future stands. Leave additional green trees in areas where standing dead/down CWD does not meet *Northwest Forest Plan* (NFP) standards. Typically, up to four additional trees per acre are left in areas where standing dead/down CWD is lacking. Create enough large, hard standing material to meet the 40 percent level of potential cavity dwelling wildlife populations. It is anticipated that natural decay/falldown and blowdown of green tree retention will meet or exceed NFP requirements for down CWD.

For **Riparian Reserves and LSR**, standing dead/down CWD requirements should approximate those cited in the Mid-Willamette Late Successional Reserve Assessment (LSRA) for the area. Treatment objectives in these allocations would be for individual tree growth and/or stand structure enhancement for the purposes of accelerating late successional forest development in younger age classes. Landscape level considerations include connectivity for species, past management and natural disturbances such as fire, insects, and disease. The long term landscape level goal is for 15 percent ground cover of all decay classes of down wood . Twenty-five percent of that cover is represented by sound wood. This represents from 3 to 4 percent cover which is 3 to 4 times the NFP goals for the GFMA lands. When decayed logs are deficient, compensation in sound logs can be achieved over time. Snag levels range from 10 to 50 trees per acre of which 50 percent are in the soft stage and 50 percent are the largest available. In general, small snags will not persist as long as large snags, nor provide the same wildlife habitat. Leaving trees to grow and become snags later is appropriate in early to mid successional stands.

Terrestrial Recommendation #3 - Land Tenure (Findings #3 and 4): According to

definitions under Land Tenure on page 53 of the Salem District RMP, the BLM lands in the Lower/Middle North Santiam Watershed are mapped as Zone 2, with the exception of the scattered parcels along the Lower North Santiam River itself, which are mapped as Zone 3. The highest priority lands in the Lower/Middle North Santiam Watersheds for retention in federal ownership include lands with high ecological values. These lands include all federal lands in the vicinity of Monument Peak, Mount Herob, Rocky Top, and Federal parcels along the North Santiam River. Consider amending the RMP to designate these lands as Zone 1, high priority for retention. The remaining lands in the watershed should be retained in Zone 2 according to the RMP. There are no federal lands in the watershed that meet the definition of Zone 3, high priority to exchange out of federal ownership.

Terrestrial Recommendation #4 - Reduce Road Densities (Finding #5):
Reclaim/decommission roads to reduce road densities in the Analysis Area. Where roads cannot be decommissioned, close and storm proof unnecessary roads. Road densities are expected to increase slightly within the watershed as additional roads are constructed for timber harvest on non-federal lands. On federal lands, there will be no net increase and likely a net decrease in road densities in the future. The current trend toward road closure and decommissioning is anticipated to continue as private land owners maintain current closures and close additional areas, and federal roads are decommissioned or closed to meet the Aquatic Conservation Strategy Objectives.

Terrestrial Recommendation #5 - Roadside Vegetation Management (Finding #6):
Roadsides should be inventoried for rare plant populations and native plant communities, especially in the Willamette Valley. Care should be taken to inventory for and locate native plant communities along roadsides, especially those supporting rare Willamette Valley endemics. Roadside rare plant sites on lands managed by public agencies should have maintenance strategies designed to ensure habitats are maintained or improved. These strategies should include measures to make sure road maintenance crews and contractors know where the rare plant populations are and what the recommended management activities entail. Lane County Department of Public Works, along with the Eugene District BLM and the Emerald Chapter of the Oregon Native Plant Society, developed and implemented a signing system for their rare, roadside plant communities several years ago. A similar partnership and program could be developed in Linn and Marion counties.

Terrestrial Recommendation #6 - Monument Peak *Bridgeoporus* Conservation Measures (Finding #6): *Bridgeoporus nobilissimus*: Inventory the entire potential habitat area on federal lands in the North Santiam Watershed. Maintain and develop mature, large diameter, declining *Abies* tree, snags and stumps in the vicinity of Monument Peak. Monitor and determine the extent of the Monument Peak population, to characterize its population structure and to help understand its habitat and life history requirements.

Terrestrial Recommendation #7 - Noxious Weeds (Finding #7): Pursue the development of a working partnership among all landowners and managers to cooperatively and systematically combat weeds in the North Santiam Watershed and the Willamette Basin. A good place to start is by having local involvement, from a variety of land managers and owners, in the developing Willamette Basin Invasive Weed Management Partnership.

Use the principles of integrated weed management to eradicate, control, and prevent the spread of noxious weed and invasive exotic species infestations. Integrated weed management means using all suitable methods (cultural, physical, biological, chemical) in a compatible manner to reduce weed populations.

Control large core infestations primarily by using appropriate biological control agents and revegetating disturbed ground with desirable species.

Encourage the development and use of best management practices to reduce the spread of invasive species. Examples include: using certified weed free seed on revegetation efforts and to require that ground disturbing equipment is free of mud and plant parts before it breaks ground at a new location in the watershed.

Terrestrial Recommendation #8 - Nesting Spotted Owls/Habitat (Finding #10): Coordinate management and protection around KOSs with adjacent private landowners and the State. All KOSs in the Analysis Area are considered to be high priority sites for protection.

Human Uses - Findings and Recommendations

What are the major human uses in the Little North Santiam Watershed. Where do they generally occur in the watershed? What are the current conditions and trends of the relevant human uses in the watershed? What makes this watershed important to people.

Findings:

Finding 1 - General: Timber, agricultural, water, and recreational resources make the North Santiam Watershed an important place to people living in and visiting the watershed. If populations in the central Willamette Valley continue to increase as expected, the demand for all of these resources will continue to grow, along with the potential for conflict associated with that demand.

Finding 2 - Timber Management: Under the Salem District Resource Management Plan, timber harvest activities will continue to occur on BLM-administered lands in compliance with the Land Use Allocations in described in the Salem District RMP. Timber harvest activities will include regeneration harvest, thinning, density management and salvage operations conducted according tho the Northwest Forest Plan (NFP). Timber harvest is also likely to continue on lands administered by the U.S. Forest Service where allowed and on private and state forest lands as well.

Finding 3 - Rural Interface: Approximately 1,486 acres of the BLM-administered in the North Santiam Watershed are located within a Rural Interface Area (RIA's). Most of the residential landowner concerns in RIA's are associated with timber management and recreational/public use. Timber management concerns are associated with potential negative impacts to water quality, scenic quality, recreational values and short term disturbance during logging operations (i.e. noise, dust, log truck traffic). Recreational/public use concerns are related to problems such as littering, vandalism, theft, fire use, shooting, and other noise on public lands adjacent to or near residential lands. Problems with trespass and negative uses and shooting associated with public use of BLM-administered lands near private property is also a concern.

Finding 4- Recreation: There may be some potential for better management of the informal trail system that has developed above Mill City and around the Shellburg Falls area. However, more information about the location and extent of the existing trail system is needed. The involvement and support of private landowners in the area would be an important component of any further action to manage or improve the existing trail system.

Finding 5- Monument Peak Special Interest Area: There is currently no management plan for the Monument Peak Special Interest Area, however, visual resource management has been addressed and recreation opportunities for trails and interpretation have also been identified. Resource damage from OHV use on F.S. spur Rd. 2202-703 has been observed. Severe rutting on this road has diverted normal drainage patterns.

Finding 6 - Public Access: Motorized access to public and private lands in the North Santiam Watershed will most likely decrease in the long term, if problems with garbage dumping, erosion, damage to vegetation, vandalism, theft, long term occupancy, and reckless fire and firearm use, continue to grow. The restriction of vehicle access to both private and public forest lands is a growing trend in many of the watersheds in western Oregon that are near rural and urban areas.

Without the funding to provide adequate enforcement and develop self-policing partnerships with user groups, limiting vehicle access is currently the only cost effective way of addressing these problems. Because of the intermixed ownership pattern of private and public lands in the North Santiam Watershed, any long term solution would have to be a collaborate effort between private and public land managers.

Finding 7 - Visual Resources: Because of the small percentage of BLM ownership and the intermixed patchwork pattern of that ownership, the BLM has very little control over scenic quality in the North Santiam Watershed. While BLM will continue to manage lands in compliance with its Visual Resource Management guidelines, both timber harvest and non-forest land uses will continue to be evident throughout the watershed.

Finding 8 - Prohibited Uses: In the past, there have been meetings between landowners in the watershed and Marion County Sheriff's department to discuss public use issues in Little North Santiam and the North Santiam River related to vandalism, trespass, unsafe firearm use, illegal dumping, long-term occupancy and a variety of other issues. If use continues to grow at a faster rate than individual agency resources can manage, cooperative management and projects will only become more important.

Recommendations

Recommendation 1 (Findings 1, 2, 3, 6): Many of the same management practices can be used to mitigate potential impacts associated with timber harvest activities in areas with rural interface and visual resource concerns. Special consideration should be given to those BLM-administered lands which have high sensitivity for both Rural Interface and Visual Resource concerns. Below is a list of mitigating actions that could be taken depending on the proposed action and the site specific characteristics.

* Get adjacent landowner input early in planning process for areas with a potential for high sensitivity to better determine areas of concern.

* Early in project planning, consider reducing visual or other disturbance factors in designing the size, shape, and location of the timber harvest units or project. Consider small patch cuts, thinning, or uneven aged management to better maintain forest cover.

* Where possible utilize green retention trees and riparian reserves to buffer the visual impacts from view. Consider leaving additional trees for added buffering were needed.

* Where possible, consider using alternative reforestation site preparation prescriptions as alternatives to broadcast burning.

Recommendation 2 (Findings 4): As funding and time allows, develop a master plan for the management of Fishermen's Bend Recreation Site.

Recommendation 3 (Findings 4, 5): As funding and time allows, inventory existing trails receiving both motorized and non-motorized use and evaluate options for managing that use in cooperation with adjacent land owners and users.

Recommendation 4: Monument Peak Special Interest Area: It is recommended that the Monument Peak Special Interest Area continue to be managed under the current OHV and visual quality protection guidelines. However, opportunities for trail and interpretation development could be explored and OHV use addressed with the development and implementation of a Special Interest Area management plan.

Recommendation 5 (Findings 7): Clean up all known abandoned vehicle and garbage dump sites on BLM- administered lands as funding allows. Work with other landowners and law enforcement entities to reduce prohibited uses, while continuing to provide public access. Mapping problem areas and developing a cooperative clean-up and patrol strategy could also be explored.