

Table 7. Comparing All Variables Measured For The West Branch Of The North Fork Smith River.

	Transect 1a	Transect 1b	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6a	Transect 6b	Transect 7	Transect 8
Comparing canopy values (percent)										
Indirect solar radiation	29.02		25.47	23.82	12.05	24.22		34.17	38.62	40.74
Direct solar radiation	22.37		21.66	22.11	17.95	20.96		40.7	41.74	24.22
Summer average (direct radiation)	23.12		23.45	22.09	18.39	21.86		44.10	43.87	21.03
Comparing substrate (percent)										
Sand	8.13	6.96		19.63	4.17	12.68		11.11	24.71	12.82
Gravel	19.51	3.48		19.63	9.37	22.39		14.81	77.64	12.82
Cobbles	38.221	6.96		38.65	6.25	39.55		47.22	0	48.71
Boulders	4.88	5.22		17.79	6.25	5.97		12.96	2.35	4.27
Bedrock	27.64	76.52		1.23	68.75	8.95		9.25	1.17	18.8
Other	2.44	0.087		3.07	5.21	8.95		4.63	7.05	2.65
Comparing Width/depth ratios from cross-sections										
ratio	19.2	42.9	26.47	19.78	8.28	9.62	18.08	21.6	28.05	15.29
Comparing Low -Flow data										
Date	9/1/00	9/1/00	9/5/00	9/5/00	9/5/00	9/1/00	9/1/00	9/1/00	9/1/00	
Discharge(Q) (CFS)	1.28(?)	0.44	0.41	0.34	0.07	0.26	0.31	0.22	0.07(lots of sub-surface flow)	
Aspect	SE	SE	SE	W	W	SE	SE	SE	SE	W
Comparing Temperature Data										
Instant daily high	67.3	65.5	67.3	62.9	60.6	67.0	67.3	72.3	61.2	75.1
7-day average maximum	64.2	64.3	66.0	61.9	59.7	65.9	66.2	71.2	60.0	73.8
# days >64	7	5	12	0	0	12	19	38	0	55

TERRESTRIAL (FOREST VEGETATION)

ISSUE: Is the forest seral stage distribution moving toward the desired future condition? Are forest stand composition and structure moving toward the desired condition?

Question 1: What are the spatial trends in seral conditions including age and structural distribution?

Monitoring actions: This monitoring question is tiered to the province scale Late-Successional and Old-Growth Forest Effectiveness Monitoring Plan for the Northwest Forest Plan (Hemstrom et al 1998). A pilot study was conducted in the Oregon Coast Range Province from 1996 - 1999 to test some of the province-scale effectiveness monitoring questions, including this one.

An assessment of current (baseline) conditions of forest vegetation classes was made from both satellite imagery and ground-plot data. The Coastal Landscape Analysis and Modeling Study (CLAMS) of the Forest Service Pacific Northwest (PNW) Research Station prepared the remote sensing information. The ground data were from the Current Vegetation Survey (CVS) plots permanently located on a 1.7-mile grid on the Siuslaw NF.

Trends in seral conditions will be determined from comparisons of future forest class assessments using the same or similar systems of data collected at 10-year intervals.

Results: The Siuslaw NF contains a relatively even distribution of forest size classes (and seral stages). About 29% of the Forest is currently in late-successional/old growth (LSOG) condition, with most of that in Late-Successional Reserve (LSR) lands. Desired future condition under the Northwest Forest Plan is for the Siuslaw to contain about 85-90% LSOG for northern spotted owl habitat and other species associated with this type of forest habitat. These habitats would be located primarily in the LSRs, Administratively Withdrawn lands and most of the Riparian Reserves.

An analysis of the spatial distribution of LSOG in the Province found that only about 14% of the LSOG area is in stands greater than 1,000 acres. LSOG on federal lands is also very fragmented with only 25% of the LSOG area in stands greater than 1,000 acres. "Interior" forest conditions occur on about 45% of LSOG area, indicating sharp edge effects and small stand sizes across federal lands.

Additional information about the assessments made in the pilot study can be found in a separate report, "Final Draft Effectiveness Monitoring Pilot, Oregon Coast Range Province", June 1999 available from the Siuslaw National Forest, Supervisor's Office, Corvallis, OR.

Question 2: What are the trends in species composition and structure for stands in the various Northwest Forest Plan allocations?

Monitoring action: This monitoring question is also tiered to the province-scale effectiveness monitoring plan and was pilot tested on the Siuslaw NF. Data for species composition and structure came from the CVS plots.

Results: Analysis of species composition and structure found within LSOG stands indicates a wide range of stand conditions between late-successional and old growth, yet some definite characteristics that allow distinctions between late-successional and earlier seral stages. For example, in the western hemlock series, late-successional forests contain an overstory of Douglas-fir trees with 19 trees/acre over 30" dbh on average. The understory contains numerous western hemlock saplings and a wide range of young western redcedar. Large snags (> 20" dbh and >50' tall) are present, but not in great numbers, typically ranging from 1.5 - 2.5 snags/acre. Down wood is found in a range of 35-45 tons/acre. In the Sitka spruce series, late-successional conditions are similar except the overstory contains Sitka spruce and Douglas-fir with an average of 5 spruce trees/acre over 30" dbh.

Additional information about the assessment of current structure and composition of LSOG stands on the Siuslaw NF can be found in the pilot report referenced in the previous monitoring question.

Question 3: Are silvicultural treatments effective in promoting development of LSOG composition and structure at the stand scale? Are the treatments resulting in forestwide diversity of late-successional conditions?

FY 1997-2000 Monitoring Report

Monitoring actions: Sampling schemes are being developed to address this question. Tentative methods were developed in 1998 as part of the effectiveness monitoring pilot study. The methods are described in the Siuslaw Forest Monitoring Questions report of March 1999.

Results: Results will not be available for about 5-10 years.

Question 4: Are populations of destructive insect and disease organisms remaining below potentially damaging levels following management activities?

Monitoring actions: The Regional Insect and Disease Staff monitor insects and disease extensively in cooperation with the Oregon Department of Forestry using aerial observation. In recent years, two flights have been flown. The first observation flight is done in the spring and looks exclusively at Swiss Needle Cast. A second flight occurs in the summer that surveys and includes all other forest pests including bear damage. Forest personnel also monitor while doing day-to-day activities.

Results: Swiss needle cast (SNC) (*Phaeocryptopus gaumannii*) continues to spread and intensify throughout all ages of Douglas-fir along the coastal areas of the Forest. To better assess the scope and function of Swiss needle cast, the Swiss Needle Cast Cooperative (SNCC) was established in January 1997. The SNCC is located at the College of Forestry at Oregon State University. The SNCC conducts research on the biology, detection, and management of SNC in coastal Douglas-fir as related to basic infection biology and genetics, tree physiological dysfunctions, aerial and ground survey technology, disease hazard rating, growth and yield impacts and strategies for control.

Survey flights conducted in 1998 indicated 173,000 acres were affected. This is an increase of 43,000 acres over the 1996 survey. The spring 1999 survey found 295,000 acres, up 70% from 1998. Follow-up ground verification indicated that many stands not identified in the aerial survey were also infected. The rate of spread appeared to slow in 2000 with an observed red acreage of 318,000. The 2001 flight indicated a drop in incidence to 286,000 acres. The disease is spreading inland, with some areas detected in the foothills of the Cascades.

Growth rates in these stands continue to decline with overall volume growth loss in Douglas-fir running 30-40%. Increment cores are finding abnormal wood production, with a majority of the wood produced being summer wood instead of spring wood, another symptom of Swiss needle cast. A phone conversation with Doug Maguire, the OSU scientist with the SNC cooperative, responsible for monitoring the effect on tree growth, indicated the reduction in growth from infected trees has not changed in the past few years. While evidence of any significant mortality has not been observed on the Siuslaw, adjacent landowners have found mortality in both managed and natural stands.

At the present time, SNC appears to be outside the range of natural variability and will require close monitoring to determine its potential impact on Douglas-fir in the Coast Range.

Douglas-fir beetle (DFB), (*Dendroctonus pseudotsugae*). Damage from the Douglas-fir beetle (DFB), is still occurring in isolated locations throughout the Forest. In 1997, 1.4 acres of DFB infestations were detected, 59.1 acres were detected in 1998, 557 acres reported in 1999. Activity then decreased in 2000 to 162 acres. This trend corresponds to the 2-4 year activity cycle following events creating down or damaged trees. While these outbreaks are usually

consistent with objectives in managing Late Successional Reserves, conflicts with adjacent landowners managing for timber products are a concern. As we continue to conduct commercial thinnings and provide for large woody debris and snags, damage from DFB will continue. While current practices are not likely to cause widespread epidemic levels of DFBs, management practices that result in widespread accumulations of large woody debris and snags will increase the risk of larger insect infestations. This, coupled with accumulations of windthrow on non-Access and Travel Management (ATM) roads, could become a more serious problem in the future.

Spruce aphid (*Elatobium abietinum*) damage was reported and observed along the Oregon and Washington coasts in the spring of 1998. Symptoms include loss of old needles, most severely affecting the base and shady portions of the tree. Some trees lose virtually all but their current foliage.

Spruce aphid populations periodically build up over the winter, having many generations, and feeding on the needles during “mild” weather periods. Severe winters and cold snaps can limit population growth. The populations peak in spring and drop off in summer. Starvation, competition, and hot weather may contribute to decline. The damage they cause, however, becomes most apparent as the weather warms and dries in summer and damaged needles are shed.

The 1998, 1999, and 2000 surveys recorded minor amounts of spruce aphid infestations in Sitka spruce stands along the coast and coastal drainages. Little can be done to prevent incidence of spruce aphid. Spruce aphid infestations are generally cyclical with aphid populations expected to die back on their own and not be apparent for many years.

Recommended Action: For SNC: continue to participate in the SNCC, plant non-host species in areas of infection, favor non-host species when thinning stands, continue monitoring, in conjunction with the Oregon Department of Forestry. For DFB: continue to monitor, in conjunction with the Westside Technical Center (Bruce Hostetler), sites in the Pollard Cedar adaptive management study to determine impacts of coarse woody debris creation on DFB populations. For spruce aphid: no action needed.

TERRESTRIAL (PLANTATION MANAGEMENT)

ISSUE: Are plantations being managed to maintain prescribed density levels?

Question 1: Are managed stands being maintained at prescribed stocking levels?

Monitoring actions: The annual Forest Silvicultural Needs Report is used to track timber stand improvement needs and the Timber Activity Control System (TRACS) is used to monitor accomplishments.

Results: Stocking levels are managed through either precommercial thinning of younger stands (12-15 years old) or commercial thinning of older managed stands (generally 30 years or older). Neither of these activities is being accomplished at an adequate rate to meet Forest Plan objectives.

Young Plantations, Precommercial Thinning. Acres of densely stocked young plantations in need of precommercial thinning continue to increase at 4,000 to 5,000 acres per year, correlating to harvest levels in the 1980's. Funding for these treatments comes from appropriated funds. As the overall timber program on the Forest declined and the reforestation needs in Eastern Oregon increased following years of large fires, allocations of these funds to the Siuslaw has not been adequate to accomplish needed precommercial thinnings. The Forest was funded for and accomplished about 2,300 acres of precommercial thinning in 1997, 1,000 acres in 1998, 2429 acres in 1999, and 1943 acres in 2000. The existing backlog is about 23,300 acres. Failure to treat this backlog will reduce the ability of these stands to respond to future management activities and subsequently prolong or prevent the attainment of late-successional characteristics. Also, these overstocked, single-species stands are more susceptible to pathogens such as Swiss needle cast or root rot.

Older Managed Stands, Commercial Thinning. About 461 acres of older managed stands were thinned in 1997, 1,058 acres were thinned in 1998, 1157 acres were thinned in 1999 and 1445 acres were thinned in 2000. It is estimated that 3,000 to 4,000 acres of managed stands become eligible for commercial thinning each year, and there is also a substantial backlog of acres in need of commercial thinning. Accomplishment of necessary thinning acres is limited by lack of funding for timber sale planning and preparation, and increasing requirements for surveys of rare species and consultation requirements for threatened and endangered species. Other factors that limit commercial thinning include poor access or lack of access, and low value of small timber.

Recommended actions:

Young Managed Stands. Continue to request funding needed to fund the backlog of overstocked plantations. The situation has not changed from that reported in the FY1995-1996 monitoring report, and the Director of Resources for the Region is aware of the problem.

Older Managed Stands. The Forest is implementing cost-saving methods for sale preparation and implementation. These include diameter limit or designation by description for designation of harvest trees in lieu of marking each tree with paint, implementing stewardship contracts where possible.

Question 3: Are management activities meeting the prescribed standards and guidelines and do they comply with applicable laws and policies?

Monitoring actions: Monitoring of timber sales and watershed restoration projects for compliance with Forest Plan standards and guidelines is tiered to the Province level implementation monitoring program conducted by the Province Interagency Monitoring Team (PIMT). Projects selected for the Siuslaw National Forest in the Oregon Coast Range Province were the Minerva Thinning Sale and the Big Elk Thinning Sale in FY 1997 and FY 1998, respectively. No watershed restoration projects were monitored in FY 1998. Forest-Level Implementation Monitoring in FY 1999 included Big Blue and a revisit to Minerva Thin.

Results:

Minerva Thin sale. Monitoring of Minerva Thin consisted of a review only of the planned sale, since no units had been logged at the time of monitoring. The sale consisted of 13 density management thinning units in both LSR and Matrix. The PIMT found 100% compliance with the Northwest Forest Plan standards and guidelines. Two of the Plan requirements could not be met however, since the stands were not capable of meeting the standards. These included: 1) the

requirement to leave large (>20" dbh) logs for coarse woody (CWD) in Matrix and 2) the requirement to retain snags within Matrix harvest units at levels sufficient to support species of cavity-nesting birds at 40% of potential population levels. The existing stands, of an average age of 35 years, were too young and small to meet the CWD and snag requirements, so the standards and guidelines could not be met during this phase of stand development. Trees are being left to grow for future recruitment of both CWD and snags.

Big Elk Thin sale. The Big Elk sale consisted of 754 acres of density management units in both LSR and Matrix. The sale had been partially logged at the time of monitoring. The PIMT also found 100% compliance with the standards and guidelines for which the units were capable of meeting. The two Plan requirements listed above, for CWD and snag retention in Matrix, could not be met by the young stands.

In 1999, as a result of the previous two years monitoring and recommendation to conduct Forest-level implementation and watershed project monitoring, the following projects were selected for review.

FY 1999 Forest-Level Implementation Monitoring:

Big Blue Project. The Big Blue Project was reviewed on June 13, 1999. The review looked at several aspects of this project. **Thinning Unit 1 – Helicopter Landing Road 1059.654:** The helicopter landing was about the size of a football field, larger than desired. Suggestions for reducing size included incorporating road intersections, dropping logs into existing openings or plantations. **Created Openings:** Numerous openings had been created ranging from 3/4 to 1 acre in size. Many of these had been enlarged as a result of landings and yarding corridors. A suggestion made to address this concern was to wait until all logging had been completed and the stand had weathered winter storms before creating openings. Existing canopy gaps could be enlarged by creating CWD and keeping gap sizes down to 1/4 to 1/2 acre. An REO review may be necessary if this approach is taken. **Large Diameter Tree Cutting:** The marking guidelines allowed some of the largest diameter trees to be felled. An estimated 5 of the 60 largest trees per acre appeared marked for felling. Some were felled to create openings and others to release smaller sized cedar to increase species diversity. **Road 1057-615; 1057-900:** The Big Blue EA and Access and Travel Management Analysis did not plan or analyze for the construction of this road. However, the road appears on the Logging Plan and Slash Disposal Map and Sale Area and Slash Disposal Map as well as "Drawings for Proposed Whirly Bird Thinning T.S.". The Decision Notices for Whirly Bird and Blue Bird specified .6 and .25 miles of temporary road construction respectively. However, approximately 8.5 miles of temporary, reconstructed, and constructed roads were developed. There was general agreement that the road construction and clearing limits were excessive, and that the use of rock questionable in light of future plans to decommission the road. **Issues Raised:** Without a doubt, timber sale and associated activities and projects planning is a complex process, as this review clearly revealed. Several issues were raised, discussions ensued but clear resolutions remain elusive. These issues included; a) CWD; mitigation vs. enhancement and the allocation of scarce KV dollars, b) Soil Compaction, S&G FW – 107. Is this standard still appropriate in RRs and LSRs, c) Road 1059 Decommissioning calls for balancing between resource protection and providing public access, and d) processes for tracking consistency between planning and implementation of projects.

Minerva Thin Sale. The Minerva Thin Sale was revisited (June 15, 1999) to determine if the plantation management project had been implemented consistent with Forest Plan standards and guidelines (S&Gs). Six sale units were reviewed (Units 2, 4, 5, 6, 8, 10) for density management treatments in both LSR and Matrix. Logging activity in Unit 4 prevented seeing much of that unit. Overall, the project met the goals of the Northwest Forest Plan. **Silvicultural**

Prescriptions: All units easily met >40% canopy cover in Riparian Reserves. Some uncertainty remains regarding the best thinning approach to apply in overstocked plantations to accelerate the development of late-successional forests. Overall, diameter limit prescription (all trees below specified dbh limits are removed) appears to provide the greatest diversity in densities within a stand and is the least expensive to implement. Unit 10 ranged from 40 – 160 tpa in plot densities; the objective was to attain an average of 80 tpa. One drawback is the retention of only the largest trees, minimizing diversity in the short term until an understory canopy develops. Units 2, 5 and 6 were marked resulting in more uniformly spaced residual trees. Target densities were very closely to slightly higher met than recommended in the EA. However, marking units may not be cost-effective where creation of late-successional conditions are the objective. **Coarse Woody Debris:** The Matrix units met the EA objective of 4 tpa, while the LSR portion of Unit 10 exceeded the 10 tpa objective. Timber Sale Contracts can include a provision at C6.405 requiring that trees felled and left in the unit be the minimum size specified in the NEPA document. **Snags:** Snags will be created with KV funds following completion of the sale. **Clearing Size:** Many of the large trees along the road into Unit 6 were cleared for multiple landings. The landing at Unit 2 had been cleared of trees to the original large size. Clearing size should be kept to the minimum needed for safe operations and this has been the trend on more recent projects. **Temporary Roads:** The EA and Timber Sale Contract were not consistent in the amount of temporary road reconstruction and new temporary road construction specified. Disposal of residual roadbed material was a concern, also. To address these issues, sale administrators are working more closely with timber sale purchasers and loggers to better control road construction, soil displacement, and disposal of slough material. **Ground-Based Yarding:** Mechanized harvesting equipment in Unit 8 resulted in many sites of soil displacement, crushing of understory vegetation, soil compaction, and damage to residual trees (barked, scarred). Forest Plan S&G FW-107 allows tractor yarding but doing so in LSRs or RRs is questionable.

FY99 Watershed Restoration Projects:

Hall and Schuttpelz Lakes, ODNRA
Bull Run Road, ODNRA
Herman Creek FR 2160 Decommission
Rogers Creek In-Stream Structures
Mainstem Indian Creek
Archie Knowles Campground
Square Clare Road Obliterations
Alder Creek FR 8593 Decommissioning
Niagara Creek Instream Structures

FY2000 Oregon Coast Province Northwest Forest Plan Implementation Monitoring:

September 6-7, 2000: Nestucca River Fifth Field Watershed Review. Do conditions, activities, and projects meet the intent of the Aquatic Conservation Strategy? The two-day field review looked at horse trail program, road reconstruction, land exchange and rehabilitation, campground, road decommissioning, campground water system and paving, fish habitat enhancement, and motorcycle trail system.

In summary, concerns were raised regarding: a) cutting Douglas-fir trees greater than 30 “DBH in LSRs for use as in-stream fish habitat projects, b) motorcycle trail system was not consistent with LSR or ACS objectives, c) horse trail program appeared to benefit a commercial user group and should not be supported using appropriated dollars, and d) limited progress has been made in addressing road impacts within the watershed.

All reports are available at the Siuslaw National Forest, Supervisor’s Office, Corvallis, Oregon.

FY 1997-2000 Monitoring Report

TERRESTRIAL (SPECIAL FOREST PRODUCTS)

ISSUE: Is moss being managed for harvest and long-term sustainability while complying with standards and guidelines?

Question 1: How fast does moss regrow following harvest? What is the impact of moss harvest at different levels of harvest intensity? What is the impact of moss harvest within the riparian zone?

Monitoring actions: Since 1996, two large stewardship areas in the North Coast Adaptive Management Area have been set aside as moss harvest monitoring sites. Each area consists of clearcuts and young conifer forest, young to mature hardwood and mixed forest, and some older conifer forest. Each area has been divided into three harvest areas with different guidelines for each:

- Area 1. No harvest within 100 feet of a perennial stream, no harvest above 40 feet, and harvest less than 30 pounds of moss per acre (wet weight).
- Area 2. No harvest guidelines—harvest is at the discretion of the steward/harvester.
- Area 3. Left unharvested as a control area.

Within each stewardship area, 24 permanent plots have been set up which require annual monitoring. Also, 30 upland plots were surveyed for the bryophyte communities on the forest floor, logs, trees, and shrubs, ten in each harvest area. Twenty-four riparian plots were surveyed for bryophyte communities, six each on four different streams.

This was set up as a co-operative study with JeriLynn Peck (an epiphyte ecologist), Oregon Natural Heritage Program (ONHP) through a Regional Challenge Cost Share, and one local moss harvester. The ONHP has fulfilled its commitment with the cost share agreement and has chosen to cease involvement with the study. However, JeriLynn Peck has agreed to continue with the study in various capacities through the year 2004.

Results: Data collection to date has provided: a) baseline data for comparison in long-term monitoring for both landscape level monitoring and the riparian experiment, b) an analysis of the impacts of commercial moss harvest immediately following harvest, c) an evaluation of the merits of survey vs. subsampling methods of data collection, d) an inventory of the bryophyte species. The parameters of interest have been species richness, the percent cover on tree trunks and branches and shrub stems below two meters in height, and the volume of harvestable material on those surfaces. It seems survey methods were adequate for forest floor and log strata, while subsampling was necessary to detect differences on shrubs and trees. Upland and riparian communities are very similar and share the majority of their species. Field measurements of the permanent plots are scheduled through 2004 but were not completed during 2000 and 2001 because of a lack of funding.

Recommended Action: Field measurements of the permanent plots and analysis will continue as funding is available. The permanent plots have been restricted from future harvest and can be measured in the future.

ISSUE: Is harvesting of mushrooms negatively affecting long-term sustainability and protection of mushroom resources?

Questions: What are the best levels and techniques for mushroom harvest? Is the current permit system providing information about appropriate harvest methods and techniques? How much mushroom is produced on the Oregon Dunes NRA? Is mushroom harvest reducing or disturbing mycelium habitat?

Monitoring actions: A cooperative study of matsutake mushroom harvest effects and sustainability was started in the Eel Creek area of the Oregon Dunes NRA. Cooperators include mycologists from the Pacific Northwest Research Station (PNW) and two local mushroom permittees. The study plan, designed by PNW, is being replicated in a number of sites throughout Oregon, Washington, Northern California and British Columbia, which will provide a regional and site-specific context for interpretation of results. Early efforts in 1994 focused on collection of baseline information and mapping of shiro (root/mycelia systems) locations. Within the study area 82 shiros were identified and mapped. Baseline information and mapping was utilized to select treatment plots. In 1995, treatments, mimicking various harvest practices, including no harvest controls, were applied to 27 plots (included 3 replications). Post treatment mushroom production within the plots has been monitored through five mushroom seasons (1995 - 1999).

Mushroom production data for the entire study area has been collected annually. Data pertaining to size, weight, grade and wildlife consumption has been collected from 1,618 mushrooms in 1994, 4,941 mushrooms in 1995, 2,601 mushrooms in 1996, 3,205 mushrooms in 1997, 2,302 mushrooms in 1998 and 3601 mushrooms in 1999.

Personnel involved in monitoring reviewed the mushroom permit system and permit conditions annually and permit administration to incorporated new information and evaluate the previous season.

Results: Treatment plots mimicking surface-disturbing harvest practices, such as raking, resulted in reduced mushroom production. Reduced productivity was similar in all plots in which surface disturbance was applied (deep rake with duff replaced after treatment, deep rake without duff replacement, shallow rake with duff replacement and shallow rake without duff replacement). Recovery of mushroom production within rake plots was evident but remains substantially below pretreatment or control plots during the five years of post treatment monitoring.

Treatment plots that use harvest methods with minimal surface disturbance (Best Management Practices) have shown no reduction or increase in mushroom productivity. To date there is no statistical difference in mushroom productivity between BMP and control plots. These results support and reaffirm current mushroom permit conditions and mushroom harvest educational materials developed by the Forest and region.

Annual mushroom productivity information from the Eel Creek study area has been utilized in relative comparisons with similar studies in other areas. On a per acre basis, the Oregon Dunes area (Coos Bay Dune Sheet) appears to be more consistent in annual mushroom production and significantly (an order of magnitude) more productive. In addition, annual productivity, correlated with weather or other available information, may form the basis for development of a predictive index for matsutake mushroom production on the central Oregon Coast in the future.

Recommended Action: Continue mushroom picking under permit conditions using Best Management Practices (BMP). Assess forest commercial mushroom permit programs annually to promote stewardship of fungal resources.

TERRESTRIAL (RESEARCH NATURAL AREAS)

ISSUE: Are Research Natural Areas (RNAs) being protected according to the RNA Establishment Records?

Question 1: Are invasive vegetation control projects at Sandlake RNA effective?

Description of Project Area. In 1993, the Sand Lake Research Natural Area (RNA) was established in part to preserve the native dune grassland community of red fescue (*Festuca rubra*), dune bluegrass (*Poa macrantha*) and dune wildrye (*Elymus mollis*). The RNA includes over 75 acres of dune forms, including active parabola dunes, active and stabilized dune ridges and sand blowouts. The dune system extends to adjacent private land outside of the RNA. About 40 acres in the center of the northern portion of the RNA are purely native dune grassland community. European beachgrass (*Ammophila arenaria*), Scots broom (*Cytisus scoparius*), and shore pine (*Pinus contorta*) are invading the fringes of the native community as well as the southern 35 acres of the RNA dunes. The trees appear to provide enough of a change in microclimate for thick mats of moss (tentatively identified as *Racomitrium lanuginosum*) to form in low, partially shaded areas of the dunes. The southern 35 acres of the RNA dunes contain native plant species but the dunes are dominated by European beachgrass with scattered Scots broom in the dunes and lining the edges of the RNA.

Monitoring actions: A beachgrass control strategy pilot and monitoring plan was established in 1995. The 1998 remeasurement resulted in recommendations for further vegetation control (1999-2001) and monitoring in 2001. Scots broom and shore pine abundance are not being quantitatively monitored at this time.

Invasive vegetation control design. The main strategy has been to focus annual beachgrass pulling along the main dune ridge separating the fairly pristine northern third of the open dune in the RNA from the more severely affected southern portion to reduce the rate of spread into the pristine community. Spot treatments (pulling) of denser beachgrass areas within the northern area supplement the main strategy. An area of 4 to 6 acres has been pulled by work forces including the Camp Tillamook Work Study Center For Boys (1994), Federal Bureau of Prisons crews (1995,1996), the Hebo Ranger District fire crew (1995), a Youth Conservation Corp Crew (1996), private contractors (1997, 1998, 1999), and the Multnomah County Corrections Crew (2000). The area adjacent to the right of way along the northwest boundary of the RNA's dune has had some control of Scots broom and lodgepole pine. Note: All "removal" discussed was manual (by hand or by shovel).

Results: Twelve 37.5' radius plots were installed and marked with rebar in 1995. European beachgrass cover was recorded. Cover of other species combined was also recorded, while the composition was noted. The plots were located to span the range (0 to 20%) of beachgrass cover found within the pulling project area. Monitoring results (1995-2001) are archived in the RNA data bank, part of the Forest Science Data Bank at Oregon State University.

Table 8. Beach Grass Control Results, 2001

Percent of European Beachgrass in Plot			
Plot #	1995	1998	2001
01	10	0.1	0.1
02	10	1.0	0.1
03	3	0.1	0.1
04	2	8.0	1.0
05	6	2.0	2.0
06	2	0.1	0.1
07	6	1.0	0.1
08	5	0.1	0.1
09	0	0.1	0.1
10	4	1.0	1.0
11	20	0.1	0.1
12	2	0.1	0.0

Amounts of native species stayed about the same or increased slightly on each plot.

Specific actions recommended in 1998:

1. Minimize sand accumulation on the road by pushing sand away from road into recreation area. Build a dune about 85-100 feet from the road.
2. Reduce vehicle access: Build a fence along the base of the recreation side of the dune to keep ORVs/ATVs out of the road buffer.
3. Prevent weed encroachment from recreation area and road: Plant shore pine along both sides of the road to stabilize the sand and shade out beachgrass and Scots broom. Control Scots broom on the recreation area side of the road to reduce seed source. Cut roadside Scots broom and release the existing shorepine in the right-of-way (ROW).
4. Reduce and control European beach grass and Scots broom invasion within RNA.
5. Consider herbicide use on European beachgrass within ROW.

Followup on 1998 recommendations:

- Block access to the RNA and Sand Lake recreation area from the Three Capes Road.
- Minimize sand accumulation on the Three Capes Road.
- Reduce and control weed encroachment into the RNA from the recreation area and road.

Follow-up 1999- 2000:

- Scots broom, beachgrass and encroaching shore pine were cut or pulled by hand.
- The County leveled the area between the road and the Recreation Area; sand was removed and hauled off to fill a hole at Cape Lookout State Park.
- The Bureau of Prisons built a wire fence about 100 feet from the road and extending along the road for the entire length of the Recreation Area.
- A turnout and parking area was defined in the sand, lined with rock and split rail fence.
- A large informational sign was put up.

- Lack of bathroom facilities may have an impact on the ROW on the RNA side.
- It does not appear that Scots broom was cut on the RNA side to release the shorepine.
- The Multnomah County Corrections Crews removed beachgrass and Scots broom. The removal area was expanded southwest by about one acre in order to widen the beachgrass-free zone.
- The Multnomah County Sheriff's Correctional Crew planted the flat area with beachgrass they had removed from the RNA.
- No further action on herbicide use was initiated.

Strategies Based on Quantitative and Qualitative Monitoring:

Because of the efforts to keep Three Capes Road free of sand, there is very little sand movement into the RNA. A fringe of shorepine and Sitka spruce (*Picea sitchensis*) has become established along the RNA side of the highway. Although the trees act as a barrier to sand movement into the RNA, they also catch the windborn seeds of Scots broom and European beachgrass. Where there are gaps in the tree fringe, there are corresponding incursions of beachgrass on dune ridges within the RNA. In addition, the trees discourage entry by motorized vehicles. For these reasons, young trees invading the dunes are being transplanted to fill in the gaps in the tree fringe. When the trees get big enough to discourage motorized vehicle entry, the Scots broom plants invading from the right of way may be more confined by blockage of wind dispersed seeds and by light competition in the forested strip. Until then, large Scots broom plants currently growing in the gaps should be removed to discourage seed production, seed banking, and dispersal into the RNA.

Beachgrass that grows back after being pulled once or twice and newly established beachgrass is relatively easy to pull out by the roots. The initial attack on established beachgrass is the most difficult stage, but persistence (annual removal) is needed to ensure that the beachgrass will not re-establish from existing root systems or windborn seeds.

The original strategy of beachgrass pulling included hauling the beachgrass off the dunes so that the roots could not be buried by sand, allowing the beachgrass to re-establish. This strategy did not work with the BOP crew, who began to burn the piles in open sandy spots in the dunes. For a while, the fire crew burned piles left by the contractors, but eventually the piles were left unburned and were eventually covered by sand. Although some beachgrass has grown from these decaying piles, the native grasses occur more frequently. This may have to do with the relative stability of the piles and the amount of sand movement required by each species: seashore bluegrass prefers a moderate amount of sand movement; red fescue favors less sand movement; and European beachgrass prefers active sand movement (J. Christy, personal communication, 1995).

TERRESTRIAL (WILDLIFE - OREGON SILVERSPOT BUTTERFLY)

ISSUE: Are recovery plan objectives for the Oregon silverspot butterfly being met?

Question 1: Is all known habitat protected in accordance with the Recovery Plan?

Monitoring actions: Yearly monitoring is done in the potential habitats surrounding existing populations at Rock Creek/Big Creek, Mt. Hebo, Cascade Head, and Bray Pt.

Results: These programs, which monitor adult butterfly populations and their use of managed grasslands on the Forest, have not identified any additional populations or habitat that should be included in Management Area 1, an area set up specifically for this species in the Siuslaw Forest Plan (1990).

Recommended action: None

Question 2: Are protected and managed meadows producing enough violets?

Monitoring actions: Violet densities were estimated along standardized transects at Bray Pt. in 1997 and at Rock Creek in 1997, 1998, 1999 and 2000.

Results: Numbers were stable at Bray Pt. compared to previous years. At Rock Creek in 1997, numbers had increased on the east side of Highway 101, but declined or were stable on the west side. In 1998, however, relative violet densities along all transect were poor to very poor.

At Rock Creek in 1999, numbers of violets decreased precipitously due to extremely adverse weather conditions that spring. Although numbers rebounded somewhat in 2000, they still were well below those in 1997. Compared to 1991 (Table 9), violets were down everywhere in 2000 except in Area #7, which is recently acquired and converted to meadow and does not suffer from invasions of tall, rank-growing exotic grasses like the rest of the Rock Creek site.

Discussion: The temporary lack of violets at Rock Creek in spring 1998 and 1999 was caused by unusually cold and wet weather in May, and not by management activities.

Recommended action: Continue activities to maintain early seral, low growing vegetation at all sites.

Question 3: Has a management plan for each habitat area been written?

Monitoring actions: Management plans for Bray Pt., Mt. Hebo, and Rock Creek/Big Creek were reviewed.

Results: Management plans used to implement the 1982 species recovery plan during 1990-96 were written in 1989 and are now out-of-date, because of greater understanding of the effectiveness of various management techniques and further invasion of some sites by exotic plant species. The same goes for the 1996 Management Plan for Mt. Hebo Special Interest Area, which is based on the 1989 implementation plan.

Discussion: Use of outdated plans continues because the US Fish and Wildlife Service has not finished the revised recovery plan which has been in draft form for more than five years. The draft is out-of-date because it was based on recovery of existing populations at the six remaining habitat sites from Northern California to Southern Washington, some of which have since been extirpated. When the plan will be done is unknown, although USFWS personnel have recently been assigned to the task.

Recommended action: Encourage USFWS to have a new recovery team update the draft recovery plan, and then get it finalized and approved. Then, management goals and objectives for the Siuslaw NF populations can be updated accordingly.

Question 4: Are viable butterfly populations being maintained on the Siuslaw NF?

Monitoring actions: Numbers of adult butterflies during the July - September flight season were observed along standard transects at three Forest sites by the Nature Conservancy and another private contractor.

Results: In a typical year, about 3,000 Oregon silverspot butterflies survive along 400 miles of coast from northern California to southern Washington, with 3/4th of them on Mt. Hebo (Table 10), where populations have remained relatively stable. Numbers of adult butterflies at Mt. Hebo and Rock Creek were very high in 1997-98, adult butterflies numbers at Rock Creek were very low in 1999-2000, while those at Bray Pt. continued to decline precipitously.

Discussion: At Rock Creek, greater production of butterflies from fewer acres of highly suitable habitat in 1998 more than compensated for the lack of violets early in the growing season; results were about 600 adults there both years, well above the minimum viable level of 200. Apparently, the fewer acres were well saturated with larvae by a large population of adults the previous year. On the other hand, numbers of butterflies were down at Bray Pt. despite the apparent persistence of high violet densities at that very steep, relatively unmanaged site. Clearly, relationships among mowing and hand-slashing of habitat, violet densities, site conditions, and numbers of adults are not simple ones.

At Rock Creek, large numbers of larval butterflies surviving from 1998 apparently helped compensate for the total lack of violets early in the growing season in 1999. There were about 300 adults there in 1999, and about 200 in 2000, which is considered the minimum viable level. Apparently, the fewer acres were well saturated with larvae by a large population of adults the previous year. On the other hand, the loss of the population at Bray Pt. was due to rapid deterioration of violet densities at that very steep, relatively unmanaged site.

Recommended action: None

Table 9. Comparison Of Violet Numbers Along Transects, Average Vegetation Height, And Percent Of T

Area	# 1991 Violets	# 2000 Violets	2000 Veg. Ht. (in)	% Oviposit	# Observed
1A			7	19	15
1B			5	1	1
2A	195	48	6	12	10
2B			9	9	7
3A			11	0	0
3B	6	3	10	1	1
4			6	15	12
5	69	8	20	0	0
6			10	5	4
7	-	166	3	38	31

Table 10. Summary of Oregon Silverspot Butterfly Observations at the Central Coast Sites, 1990-2000

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Mt. Hebo											
1st visit	7/9 7/26	7/11 7/23	6/25	8/18	7/30	7/12	7/16	7/14	7/22	7/23	7/27
1st obs.	7/29	7/28	6/25	8/18	7/30	7/12	7/23	7/25	7/22	8/4	7/27
# seen	13	3	1	49	140	2	15	19	11	96	40
Peak date	8/14	8/21	8/3	9/9	8/15	8/14	8/10	8/19	8/21	8/26	8/8
Peak #	320	922	683	288	409	575	504	740	647	1313	498
Total #	1,100	2,888	2,628	1,041	2,200	3,413	2,507	2,664	2,743	4983	-
C. Head											
1st visit	7/11, 7/17	7/12, 7/14	6/23	7/26	6/20, 7/6	7/17	7/22	7/18	8/3	8/2	8/1
1st obs.	7/19	7/20	6/23	7/27	7/18	7/27	8/6	7/18	8/5	8/9	8/10
# seen	2	2	2-14	4	2	5	5	2	1	11	21
Peak date	8/28	8/14	7/17	9/8	8/23	9/9	8/28	8/21	8/31	9/7	8/28
Peak #	359	160	270	52	63	57	80	65	17	35	38
Total #	1,138	790	1,295	184	284	302	302	164	57	132	160
Bray Pt.											
1st visit	7/9	6/26, 7/3, 7/9	6/19	7/13	6/10, 7/10	7/11	6/26	7/3	7/10	7/29	7/12
1st obs.	7/9	7/18	6/19	8/1	7/10	7/11	7/11	7/3	7/16	7/29	7/28
# seen	6-10	14	20	25	2	3	9	8	2	1	3
Peak date	8/14	8/14	7/2	8/1	8/13	7/28	7/19	7/12	8/1	-	7/28
Peak #	42	89	91	25	16	12	26	20	18	-	3
Total #	169	280	265	81	81	53	146	101	46	2	9
Rock Cr.											
1st visit	7/9	7/3, 7/7	6/19	8/1	7/10	7/11	7/11	7/3	7/7	7/29	7/10
1st obs.	7/29	7/18	6/26	8/21	7/28	7/11	7/19	7/3	7/7	7/29	7/28
# seen	6	3	22	13	5	5	27	3	1	1	10
Peak date	8/24	8/23	7/2	8/21	9/5	8/23	8/1	7/30	8/18	8/17	8/25
Peak #	39	34	83	13	10	64	29	47	54	30	19
Total #	142	113	242	35	65	287	224	236	197	135	70

TERRESTRIAL (WILDLIFE HABITAT-NORTHERN SPOTTED OWLS)

ISSUE:What are the trends in habitat for northern spotted owl pairs/resident singles on the Forest landscape?

Question 1: What is the amount and what are the trends in suitable northern spotted owl habitat on the Forest?

Monitoring actions: The interagency Effectiveness Monitoring workgroup for northern spotted owls developed methods for monitoring suitable habitat for spotted owl pairs/resident singles in February 1999. Monitoring actions are ongoing. Monitoring actions to date include describing

habitat features and components of suitable habitat and investigating the most appropriate remote sensing data to use for habitat monitoring. The Forest will adopt these procedures to determine trends at the Forest scale when they are completed.

Additional monitoring to determine trends at a sub-basin scale (4th field watershed) and to differentiate AMA lands from non AMA lands may be conducted. Data for current habitat levels will be collected using GIS vegetation layer. Data for anticipated habitat change will be based on the Forest Vegetation Simulator (FVS) model in Fort Collins, CO, using habitat and growth conditions for the Oregon Coast Ranges.

Results: To date there have been no actions taken to measure the amount of habitat for this question at the province scale. Provincial monitoring procedures are presented as part of the interagency effectiveness monitoring efforts for northern spotted owls (Lint, et. al. 1999).

Recommended action: Complete habitat definition and decide on most appropriate methods to remotely measure suitable spotted owl habitat across the province.

TERRESTRIAL (WILDLIFE HABITAT-MARbled MURRELET)

ISSUE: What are the trends in habitat for marbled murrelet on the Forest landscape?

Question 1: What is the amount and what are the trends in suitable marbled murrelet habitat on the Forest?

Monitoring actions: The interagency Effectiveness Monitoring workgroup for marbled murrelets developed methods for monitoring suitable habitat for marbled murrelets in the Marbled Murrelet Effectiveness Monitoring Plan for the Northwest Forest Plan, February 1999. Monitoring actions are ongoing. Monitoring actions to date include describing habitat features and components of suitable habitat and investigating the most appropriate remote sensing data to use for habitat monitoring. The Forest will adopt these procedures to determine trends at the Forest scale when they are completed.

Additional monitoring to determine trends at a sub-basin scale (4th field watershed) may be conducted. Data for current habitat levels will be collected using GIS vegetation layer. Data for anticipated habitat change will be based on the Forest Vegetation Simulator (FVS) model in Fort Collins, CO, using habitat and growth conditions for the Oregon Coast Ranges.

Results: To date there have been no actions taken to measure the amount of marbled murrelet habitat for this question at the province scale. Provincial monitoring procedures are presented as part of the interagency effectiveness monitoring efforts for marbled murrelets (Madsen, et. al. 1999).

Recommended action: Complete habitat definition and decide on most appropriate methods to remotely measure marbled murrelet suitable habitat across the province.

TERRESTRIAL (WILDLIFE HABITAT-BALD EAGLE)

ISSUE: What are the trends in habitat for northern bald eagles on the Forest?

Question 1: What is the amount and trend in suitable northern bald eagle habitat on the Forest, and within Management Area 4?

Monitoring actions: 1) Measure current acres of mature conifer habitat within 1.0 mile of major rivers (e.g., Siuslaw) and within 0.5 miles of major tributaries of major rivers (e.g., North Fork Siuslaw River) and the trend in mature conifer habitat within the same areas expressed as a decadel projection for the next 5 decades, and 2) Measure current acres of mature conifer habitat in Management Area 4 sites and the habitat trend within the same areas expressed as a decadel projection for the next 5 decades. Monitoring was done by mapping 1.0 mile and 0.5 mile eagle suitable habitat zones buffered on major rivers and large tributaries, respectively. The data for current habitat levels within above zones were collected using GIS vegetation layer. Data for anticipated habitat change within above zones are based on the Forest Vegetation Simulator (FVS) model in Fort Collins, CO using habitat and growth conditions for the Oregon Coast Ranges.

Results: The Forest has delineated a bald eagle habitat base for U.S. Fish and Wildlife Service consultation. The habitat base (land capable of producing bald eagle habitat that has a high probability of being used by eagles) is defined as:

- 1) All lands within 1.0 miles of the ocean shore, and
- 2) All lands within 1.0 miles of major rivers, and
- 3) All lands within 0.5 miles of major tributaries of major rivers.

The bald eagle habitat base on the Forest is fixed at approximately 153,200 acres, but the trend in the development of acres of suitable habitat (conifer stands with an average stand diameter at breast height of at least 18 inches) within the base is increasing as commercial thinning accelerates tree growth in young stands and existing stands become more complex in size and structure. The bald eagle habitat base is a better indicator of bald eagle habitat on the Forest than MA 4 (Bald Eagle) because it represents not only the existing territories and projected territories but all the potential and capable bald eagle habitat. The amount of currently suitable bald eagle habitat within the bald eagle habitat base on the Siuslaw National Forest is 62,300 acres or 40.6% of capable. This figure has not changed measurably in recent years, but is projected to increase over the next 5 decades.

The current land allocation in and around each bald eagle nest territory is Late Successional Reserve (LSR) as a result of Northwest Forest Plan amendments made in 1994. Because LSR's are management areas that afford complete protection of all mature conifer habitats older than 80 years, and direct that all stand manipulations be for the benefit of late seral species, the need for MA 4 protection has been greatly reduced. Management Area 4 was a land allocation that afforded protection of all habitat in the immediate vicinity of each existing or potential nest territory. The size of each MA 4 varied, but each was at least 0.25 mile radii around the existing or potential nest stand. Because this MA was developed as a protective zone, outside of which intensive timber management could occur, the area was designed to minimized impacts from timber production and to emphasis bald eagle needs within MA 4.

Recommended action: None.

TERRESTRIAL (WILDLIFE HABITAT-SNOWY PLOVER)

ISSUE: What is the trend in restoring habitat for western snowy plover?

Question 1: Are habitats important for western snowy plover nesting and brood rearing increasing on the Forest?

Monitoring actions: 1) Measure acres of western snowy plover nesting and brood rearing habitat created. 2) Measure acres of western snowy plover nesting and brood rearing habitat maintained. 3) Describe trends in the amount and distribution of western snowy plover nesting and brood rearing habitat.

Results: The amount of western snowy plover nesting and brood rearing habitat has increased on the Forest from 1997 to 2000. The total amount of nesting and brood rearing habitat on the Forest is the result of what has been created and maintained by reducing beachgrass, balanced with the amount of beachgrass encroachment that has occurred over the same time frame. Important to point out however is the distribution of created and maintained habitat versus encroached upon habitat. The location and amount of nesting habitat created and maintained is in the most important areas as dictated by beach ecology and presence of nesting plovers. Whereas encroaching beachgrass is throughout the dunal system and along most of the ocean shore, often in places of little value to western snowy plovers.

Snowy plover Designated Critical Habitat for the Siuslaw National Forest was delineated and published in the Federal Register (Vol. 64, No.234, pg 68508) and became effective on January 6, 2000. The Forest has 3,123 acres of Designated Critical Habitat that is static as described in the Federal Register.

Creation of snowy plover nesting and brood rearing habitat has been a Forest emphasis from 1997 to 2000. Four key estuaries (Tenmile Creek, Tahkenitch Creek, Siltcoos Creek, and Sutton-Baker Beach) in addition to Dunes Overlook area have been the focus for habitat creation. The following table provides the number of acres created that benefited western snowy plover from 1997 to 2000.

Table 11. Acres of western snowy plover habitat created or maintained, 1999-2000.

Treatment	1997	1998	1999	2000
Acres Created	9	12	22	24
Acres Maintained	23	28	30	30

Recommended action: Continue to enhance snowy plover habitat as funding permits.

Question 2: Are vegetation management programs effective in controlling European beachgrass?

Monitoring actions: Measure acres of beachgrass control accomplished.

Results: The amount and distribution of beachgrass on the forest is so extensive that complete control is not feasible, nor necessary to recovery western snowy plover. Efforts are focused on key plover nesting and brood rearing areas such that over the long term beachgrass will be controlled as feasible to restored habitats necessary for species recovery.

Maintenance of western snowy plover habitat that has been created is an essential tool to long term conservation and recovery of the species. European beachgrass re-colonization of habitats previously cleared is a persistent problem. Other acres maintained for nesting and brood rearing are those within the protective closure areas during nesting and most of the brood rearing season. See Table 11 above for acres of western snowy plover habitat maintained from 1997 to 2000.

Recommended action: Continue to control beachgrass as funding permits.

TERRESTRIAL (WILDLIFE HABITAT-SNAGS)

ISSUE: Has management for snags provided suitable habitat for snag-dependent species?

Question 1: What is the life cycle for created and natural snags in selected treatment areas?

Monitoring actions: Measure the trend in number of snags remaining from initial creation or identification. Snags and snag use was recorded every other year in selected harvest areas clearcut in the late 1980's on the Alsea Ranger District and from commercial thinnings on other areas of the Forest.

Results: The Forest manages snags through a variety of methods. They include protection of naturally occurring snags in all areas of the Forest, selection and protection of naturally occurring snags in planned clearcut units, selection of green trees to top as mitigation for loss of snags due to safety concerns during harvest activities, and inoculation or topping of live trees in commercial thin units for enhancement of stand diversity.

Table 12 displays the longevity of manmade (topped trees) snags and naturally occurring snags in clearcut harvest units from 1987 to 2000 (Schrieber, 2000). The manmade snags have a higher survival rate(81%) when compared to natural occurring snags (41%) over the period 1987 to 2000. Topped trees have a greater survival than natural snags in part due to the reduced crown area subject to storm impacts that can cause blowdown.

Table 12. Trend in number of manmade and naturally occurring snags remaining from initial creation, 1987-2000.

Snag	1987	1988	1991	1994	1996	1998	2000
Manmade (Topped)	135 (100%)	130 (96%)	114 (84%)	111 (82%)	110 (81%)	109 (81%)	109 (81%)
Natural	74 (100%)	73 (99%)	67 (91%)	61 (82%)	41 (55%)	39 (53%)	30 (41%)

Recommended action: Continue to collect snag longevity data every other year.

Question 2: When do snag-dependent species begin to use manmade snags and what species (primary and secondary cavity users) are using both manmade and naturally occurring snags?

Monitoring actions: Measure trend in number of species using snags from initial creation or identification.

Results: The number and diversity of species using manmade and naturally occurring snags on the Forest is data that are being collected in conjunction with snag monitoring effort that is performed every other year. No observations of use have been recorded until the most recent data collection period (fall 2000). Only preliminary observations have been made to date so trend information is not available. The species observed include but are not limited to:

Chestnut-backed chickadee (*Parus rufescens*)
Red-breasted nuthatch (*Sitta canadensis*)
Tree swallow (*Tachycineta bicolor*)
Violet green swallow (*Tachycineta thalassina*)
Red-breasted sapsucker (*Sphyrapicus ruber*)
Northern flicker (*Colaptes auratus*)
Pileated woodpecker (*Dryocopus pileatus*)
Hairy woodpecker (*Picoides villosus*)
Douglas squirrel (*Tamiasciurus douglasi*)

Recommended action: Continue to collect snag use data every other year.

TERRESTRIAL (WILDLIFE HABITAT-SPECIAL HABITATS)

ISSUE: Are special habitats on the Forest being protected?

Question 1: Are special habitats being protected in accordance with Aquatic Conservation Strategy objectives and Riparian Reserve standard and guidelines as described in the NFP, and with Siuslaw Forest Plan standards and guidelines?

Monitoring actions: 1) Identification and mapping of special habitats during project planning. 2) Determine compliance with FP standards and guides (FW-071), Aquatic Conservation Strategy Objectives, and riparian reserve standards and guidelines during project implementation.

Results: All project planning and assessments that have been completed identified special habitats and management requirements necessary to protect, restore, or enhancement sensitive plant and animal communities.

Aquatic Conservation Strategy objectives are recommended by field hydrologists and fish biologists. Upland areas within Riparian Reserves are treated (commercially and pre-commercially thinned) with the same thinning objectives as non-Riparian Reserve areas. They all

meet all coarse woody debris and standing snag requirements stipulated in Late Successional Reserve assessments.

Recommended action: Continue to identify and manage all special habitats on the Forest.

TERRESTRIAL (WILDLIFE HABITAT-EARLY SERAL)

ISSUE: Is biological diversity being maintained for native species and ecosystems?

Question 1: Are early seral habitats being maintained across the Forest landscape in amounts and distribution compatible with NFP standards and guidelines?

Monitoring actions: 1) Identification and mapping of existing early seral habitats important to maintain as part of project planning, 2) Determine if the maintenance of existing early seral habitats identified above has been part of project implementation, and 3) Determine trends in the amount and distribution of existing early seral plant communities identified above across the Forest.

Results: Early seral habitats that are maintained across the Forest are those that are well distributed and were either obtained through trade or purchase or created as a project opportunity. Not all early seral stage areas are maintained due to budget reductions, but key areas that have been maintained over a number of years remain a high priority.

Early seral habitats are mapped at the project planning stage and assessed as to their importance and role in maintaining plant/ecological diversity. The amount and distribution of early seral communities is declining on the Forest as restoration and enhancement efforts are aimed at commercially thinning young stands to produce late seral and older forest environments.

Recommended action: Continue to identify and manage early seral habitats on the Forest landscape as funding permits.

TERRESTRIAL (WILDLIFE HABITAT-WETLANDS)

ISSUE: Are wetland habitats important for waterfowl and shorebirds being maintained on the Oregon Dunes NRA and other areas such as the Salmon River estuary?

Question 1: Are wetland habitats managed to capture existing opportunities and promote the Forest emphasis?

Monitoring actions: 1) Determine acres of waterfowl, shorebird and wetland habitat inventoried, 2) Estimate acres of waterfowl, shorebird and wetland habitat improved or maintained, and 3) Determine the trend in the amount and distribution of waterfowl, shorebird and wetland habitat managed.

Results: The Forest did not inventory any waterfowl, shorebird or wetland habitats from 1997 to 2000. GIS coverage includes delineation of wetland habitats on the Oregon Dunes National Recreation Area (ODRNA), but no Forest wide inventory was done. Reduced staffing of wildlife biologists since 1997 has resulted in reduced inventory of wetland, shorebird and waterfowl habitats.

Table 13. Estimated acres of waterfowl, shorebird and wetland habitat improved or maintained:

Habitat	1997	1998	1999	2000
Wetland	30	20	10	10
Shorebird	10	10	50	50
Waterfowl	30	20	10	10

The trend in waterfowl, shorebird and wetland habitat managed is down from 1997 to 2000. This is primarily due to reduced wildlife staffing at the ODNRA where most of the wetland and waterfowl opportunity exists on the Forest. The exception is the Salmon River estuary on Hebo Ranger District where continued management has produce restored saltwater marsh and created native plant communities from man altered environments.

Recommended action: Continue to enhance wetlands as funding permits.

TERRESTRIAL (WILDLIFE POPULATIONS- NORTHERN SPOTTED OWL)

ISSUE: What are the trends in northern spotted owl populations on the Forest?

Question 1: What is the health of the northern spotted owl population that inhabits the Oregon Coast Range? Specifically, is the population of northern spotted owls decreasing, stabilized or increasing?

Monitoring actions: 1) Determination of northern spotted owl demographic parameters from ongoing investigations by the Pacific Northwest Research Station, Corvallis, OR, on the Mapleton Ranger District, Siuslaw National Forest, and 2) Report results and conclusions from the Northern Spotted Owl Effectiveness Monitoring Plan for the Northwest Forest Plan.

The interagency Effectiveness Monitoring workgroup for northern spotted owls developed methods for monitoring northern spotted owl populations in February 1999. Monitoring actions are ongoing. Monitoring actions to date include defining methods of investigating population change in the demographic study area on the Siuslaw National Forest (Franklin, et. al 1996) and describing population trends within the demographic area (Forsman, et. al. 1996). The Forest accepts these data to represent an estimate of northern spotted owl population change on the Forest.

Results: Demographic parameters measured included fecundity and population growth rate. Results estimated the annual rate of population growth based on age-specific estimates of survival

and fecundity was 0.874, suggesting a population decline of 12.6%. The study suggests that the annual rate of population growth is biased low, primarily because of negative bias in the estimate of juvenile survival due to emigration. However, the extent to which the annual rate of population growth is biased relative to the true rate of population change is unclear, because a variety of other factors could cause positive or negative biases in estimates of vital rates (Forsman, et. al. 1996).

Recommended action: Continue to measure population change as funding permits.

TERRESTRIAL (WILDLIFE POPULATIONS- MARBLED MURRELET)

ISSUE: What are the trends in marbled murrelet populations on the Forest?

Question 1: What is the health of the marbled murrelet population that inhabits the Oregon Coast Range? Specifically, is the population of marbled murrelets decreasing, stabilized or increasing?

Monitoring actions: 1) **Determine the** trend in marbled murrelet densities within each Recovery Plan Zone on the Forest, 2) Determine trend in juvenile ratios (ratio of juveniles to after-hatch-year birds) within each Recovery Plan Zone on the Forest, and 3) Report results and conclusions from the Marbled Murrelet Effectiveness Monitoring Plan for the Northwest Forest Plan that relate to murrelet population health and distribution.

Results: A baseline population estimate from marine surveys is being developed through the interagency effort described in Madsen, et. al. 1999. After a baseline is established then population changes and trends can be determined.

Recommended action: Continue with baseline population estimate and trend data collection as funding permits.

TERRESTRIAL (WILDLIFE POPULATIONS-NORTHERN BALD EAGLE)

ISSUE: What are the trends in northern bald eagle populations on the Forest?

Question 1: What is the health of the northern bald eagle population that inhabits the Oregon Coast Range? Specifically, is the population of northern bald eagles decreasing, stabilized or increasing?

Monitoring actions: . 1) Determine the trend in the number of northern bald eagle nest sites on the Forest, and 2) Determine the trend in reproductive success of nest sites on the Forest. Data retrieved from the U.S. Fish and Wildlife Service, Oregon Cooperative Wildlife Research Unit "Bald Eagle Nest Locations and History of Use in Oregon" annual report. Data needed for Forest scale bald eagle monitoring relies 100% on surveys carried out by the U.S. Fish and Wildlife Service, Oregon Cooperative Wildlife Research Unit.

Results: The population of northern bald eagles on the Forest is static from 1997-2000 but increasing if looked at from 1990 to present. See Table below for 1997-2000 trends.

Table 14. Siuslaw National Forest Northern Bald Eagle Population Trends

District Name	FY-1997		FY-1998		FY-1999		FY-2000	
DISTRICT	No. of Nests.	Young Produced						
HEBO	3	3	3	1	3	4	3	4
MAPLETON	7	6	7	5	6	6	6	3
WALDPORT	2	1	2	1	2	3	2	2
Totals	12	10	12	7	11	13	11	9

Recommended action: Continue to cooperate with the U.S. Fish and Wildlife Service, Oregon Cooperative Wildlife Research Unit in data collection and analysis as funding permits.

TERRESTRIAL (WILDLIFE POPULATIONS-WESTERN SNOWY PLOVER)

ISSUE: What are the trends in western snowy plover breeding and wintering populations?

Question 1: What is the health of the western snowy plover population that inhabits the Central Oregon Coast? Specifically, is the population of nesting and over wintering western snowy plovers decreasing, stabilized or increasing?

Monitoring actions: 1) Determine trend in the number of western snowy plover nest sites on the Forest, 2) Determine trend in reproductive success of nest sites on the Forest, 3) Determine trend in the over wintering western snowy plover population.

Data retrieved from the nesting, reproduction, and winter survey effort collected by Forest Service, Nature Conservancy, Oregon Department of Fish & Wildlife, U.S. Fish and Wildlife Service, and volunteers and summarized for each monitoring indicator above. Data needed for Central Oregon Coast snowy plover reproductive, nesting and winter population monitoring relies on surveys carried out by Forest Service, U.S. Fish and Wildlife Service, Nature Conservancy, and Oregon Department of Fish & Wildlife biologists and summarized for each monitoring indicator above

Results: The western snowy plover nesting population is cooperatively monitored each year by the Nature Conservancy, Oregon Department of Fish and Wildlife, Mapleton Ranger District, Oregon Dunes NRA, U.S. Fish and Wildlife Service, and volunteers. The population that is monitored includes ocean shores administered by the Forest Service, Oregon Parks and Recreation Department and the Bureau of Land Management. The health of the population is moderate, that is, over the short term 1990 to present the population has increased, but is less than levels documented in the mid-70's.

The population of nesting and over wintering western snowy plovers is static on the beaches administered by the Siuslaw National Forest.

Tables 15 and 16 from (Castelein, et. al. 2000) summarizes the number of nests and fledging on beaches managed by the Siuslaw National Forest from 1990 to 2000.

Table 17 provides number the of snowy plovers observed during winter (January) window surveys along stretches of beach administered by the Siuslaw National Forest.

Table 15. Western Snowy Plover Nesting Summary for Siuslaw National Forest Beaches 1990-2000.

Site Name	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	Total Nests
Sutton Beach	-	-	-	2	1	2	6	14	8	3	7	43
Siltcoos:												
North Spit	-	-	-	0	2	4	2	0	1	4	8	21
South Spit	-	-	-	1	2	2	1	3	3	17	14	43
Overlook	-	-	-	-	-	-	-	-	-	2	8	10
Tahkenitch:												
North Spit	-	-	-	0	0	0	0	0	0	0	4	4
South Spit	-	-	-	0	3	9	18	14	6	3	1	54
Threemile Creek/ Umpqua R.	-	-	-	0	0	0	1	0	0	0	0	1
Tenmile:												
North Spit	-	-	-	-	2	2	1	0	0	0	1	6
South Spit	2	0	9	8	5	4	3	2	11	5	5	54
Total Nests	2	0	9	11	15	23	32	33	29	34	48	236

Table 16. Western Snowy Plover Fledging Summary for Siuslaw National Forest Beaches 1990-2000.

Site Name	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	Total
Sutton Beach	-	-	-	-	-	-	0	1	1	0	3	5
Siltcoos:												
North Spit	-	-	-	-	0	-	0	0	2	4	0	6
South Spit	-	-	-	-	1	2	0	0	4	2	7	16
Overlook	-	-	-	-	-	-	-	-	-	3	5	8
Tahkenitch:												
North Spit	-	-	-	-	-	-	-	-	-	-	2	2
South Spit	-	-	-	-	1	12	8	7	1	1	3	33
Tenmile:												
North Spit	-	-	-	-	0	1	0	0	0	0	0	1
South Spit	-	-	14	7	3	3	4	4	3	7	4	49
Total Nests	-	-	14	7	5	18	12	12	10	17	24	120

Table 17. Number of Individual Western Snowy Plovers During Winter Window Surveys (January) for Siuslaw National Forest Beaches 1993-2000.

Site Name	'93	'94	'95	'96	'97	'98	'99	'00	Total
Sand Lake Spits									
Berry Cr to Sutton Cr	10	6	0	14	14	13	14	17	88
Sutton Cr to N. Jetty Siuslaw R.	0	0	0	-	-	-	-	-	0
Siuslaw R. to Siltcoos Spit	0	0	4	3	22	26	23	0	78
Siltcoos Spits	1	18	19	11	0	0	1	20	70
Siltcoos Spit to Tahkenitch Spits	6	0	-	1	0	-	0	0	7
Tahkenitch Spits	0	0	0	4	7	-	0	1	12
Tahkenitch Spits to Threemile Cr	0	0	0	5	0	0	0	0	5
Threemile Cr to N. Jetty Umpqua R.	1	0	-	0	-	0	0	0	1
S. Jetty Umpqua R. to Tenmile Spits	7	0	0	1	0	0	0	3	11
Tenmile Spits	0	12	18	21	19	-	0	11	81
Tenmile Spit to Horsfall Beach	13	0	0	0	0	12	0	0	25
Horsfall Beach to N. Jetty Coos Bay	0	0	0	0	0	0	7	0	7
Total Birds	38	36	41	60	62	51	45	52	385

Recommended action: Continue to cooperate on snowy plover data collection as funding permits.

SOCIAL (COMMODITY PRODUCTION)

ISSUE: Is the Forest providing commodities at levels projected in the Forest Plan?

Question 1: Are the total sale quantity and probable sale quantity (TSQ and PSQ) similar to the levels predicted in the Forest Plan?

Monitoring action: TSQ includes the PSQ. Information came from the Periodic Timber Sale Report and MARS Reports for FY 1997 through 2000

Results: The amount of TSQ and PSQ is shown on the following table.