

United States
Department of
Agriculture
Forest
Service

Pacific
Northwest
Region



Monitoring and Evaluation Report Siuslaw National Forest

Fiscal Year 2006



*Knowles Creek, Hebo Ranger District,
Siuslaw National Forest*

September, 2007



Thank you for taking the time and interest in reviewing the results of the Siuslaw National Forest 2005 – 2006 Monitoring Report. I have arrived on the forest only a few weeks ago but I am thrilled to be a part of this forest and its reputation for restoration and strong collaboration with communities.

The report focuses on key monitoring activities and findings since the previous publication in 2005. It also summarizes some of our most successful restoration projects for the last 7 years. This year's report documents very exciting upward trends in fish populations as a result of stream restoration projects

The Forest still remains diligent in eliminating threats to the Forest including invasive species and their spread and prevents the rising of stream temperatures above State Standards.

In the last several years the Forest built and maintained several partnerships, started and completed several successful restoration projects. In this report you will be able to review the outcome of this work.

The Siuslaw is currently scheduled to begin Forest Plan revision in 2012.

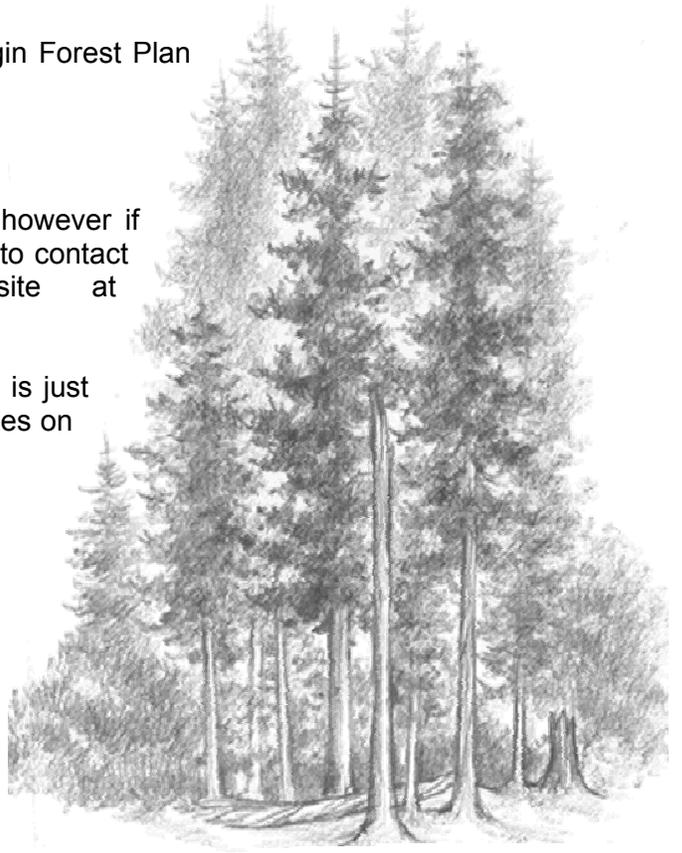
Until we begin Plan revision, it is my commitment to keep you informed of the results of monitoring through this report; however if you would like more information, feel free to contact the Forest or visit our website at www.fs.fed.us/r6/siuslaw.

Your continued interest in the Forest Plan is just one way for you to stay current with activities on your public lands.

Sincerely,

Barnie T. Gyant

BARNIE GYANT
Forest Supervisor
Siuslaw National Forest



SIU-09-07

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MONITORING AND EVALUATION REPORT

This report focuses on the monitoring and evaluation process described in Chapter V of the Forest Plan. The document provides an overview on how the Plan’s management direction is being implemented and an evaluation of the current conditions. The questions and the answers have changed as conditions have changed and new information has become available.

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Introduction

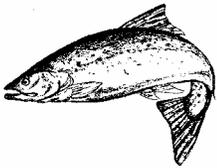
The Land and Resource Management Plan (Forest Plan) for the Siuslaw National Forest was approved by the Regional Forester in 1990 and we began implementing the Forest Plan.

This report provides information to the Regional Forester, Siuslaw forest managers and the public as to how well the Forest Plan is being implemented and if the Plan objectives are being met. Monitoring is intended to keep the Forest plan responsive to change and new information, and is therefore critical to adaptive management. Monitoring and evaluation may lead to changes in management practices or provide the basis for adjustments to the Plan. Practices will be changed when monitoring results indicate the practice or standards and guidelines are not working to meet the desired conditions.

On April 13, 1994, the Secretaries of the Departments of Agriculture and Interior signed a Record of Decision for the Management of Habitat for Late-Successional and Old-Growth Forest Related Species, referred to as the Northwest Forest Plan or NWFP, that amended the Forest Plan by establishing new land allocations (management areas) and standards and guidelines (S&Gs). The implementation of these new management areas and S&Gs began May 20, 1994. This had a profound effect on how the Siuslaw National Forest is managed today.

Aquatic Group

The Forest Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining and improving water quality, fish habitat and other water related resources. Below is a summary of FY06 monitoring questions designed to assist the Forest Supervisor in determining the effectiveness of the Forest Plan Standards and Guidelines to meet the goals of protecting, maintaining, and improving the physical environment of the Forest.



Monitoring Question: Anadromous Fish Habitat

How is anadromous fish habitat changing?

The Forest-wide Level II Stream Survey Program continues to be one of our most important aquatic monitoring tools on the Siuslaw National Forest. In 2005 we surveyed 29 miles of stream habitat and in 2006 we completed 24 miles of inventory. The survey data provides a record of current physical stream conditions and baseline information about the aquatic species present in the streams by divers snorkel surveys. Stream survey data is used to identify potential aquatic habitat restoration projects and as a monitoring tool to document the success of past restoration projects. For long-term monitoring of change to fish habitat we will rely on the Aquatic and Riparian Effectiveness Monitoring Program (AREMP). AREMP surveyors will be collecting stream data for 5 watersheds on the Siuslaw National Forest; Lobster Creek, Upper Five Rivers, Lower Indian Creek, Nestucca/Niagra Creek, and Upper Deadwood Creek. They also have roads and vegetation data for all the watersheds that have at least 25% federal ownership. The roads and vegetation data are from either 2002 or 2003 and are available from 1996. It is too early in the AREMP monitoring program to draw conclusions about changes to anadromous fish habitat on the Forest at this time.

In 2005 six miles of biological monitoring to assess the effectiveness of the Green River large wood placement project was completed and in 2006 a Level II survey was completed providing the 6th year of monitoring for this project. A three fold increase in juvenile salmonids was reported over numbers of fish counted in the 2000 pre-project survey. The survey data was also used to complete a study contracted through the Mid-Coast Watersheds Council by Bio-Surveys which reported a dramatic difference between the pre-project over winter survival rates for Coho and the post project over winter survival rates. Compared to the pre project over winter survival rate the 1st post project winter survival increased by 120

percent, the 2nd by 104 percent, and the 3rd by 102 percent and the 4th by 137 percent. Bio-surveys also reported a significant change in the distribution of over wintering Coho juveniles between the pre-project inventory and each of the post project inventories. More juveniles were retained at higher densities farther up in the system after the wood placement. This supports the hypothesis that large wood is creating the low velocity habitats necessary for retaining over wintering populations of salmonids.

The Tenmile Creek watershed restoration story was highlighted in the Siuslaw National Forest 2001-2004 Monitoring and Evaluation report and in the Forest Service publication R6-NR-WFW-05-05 Ridge Top to Valley Bottom, Restoring Whole Watersheds. The monitoring data was published in the Canadian Journal of Fisheries and Aquatic Science (Johnson et al. 2005). Johnson et al. reported an increase in steelhead smolt abundance, steelhead freshwater survival, and coho salmon freshwater survival increase in Tenmile Creek after the input of large wood.

Land acquisition has also played a large role in anadromous fish habitat restoration on the Siuslaw National Forest. A recent example is the Drift Creek restoration project located in the estuary of the Alsea River watershed. The goal of the ongoing Drift Creek Restoration Project is to reestablish estuarine and freshwater habitats by restoring hydrologic processes. Benefits to fish, aquatic species, native vegetation, and wildlife are expected to ensue. The project has improved the function of 82 acres of estuarine and freshwater wetlands, improved the function and availability of about 5000 feet of estuarine sloughs; created about 3000 feet of complex channels and habitat for a variety of species; and improved the function of five freshwater tributaries. Connectivity between Drift Creek, adjacent wetlands, and upland tributaries has been restored. The recovery of aquatic organisms to the Drift Creek salt marsh is being monitored in cooperation with the Confederated Tribes of the Siletz Indian Reservation by Stan van de Wetering, Tribal Fish Program Manager. Preliminary monitoring results reported by Stan van de Wetering (Personal Communications) show wide spread use of the salt marsh channel by age 0+ coho salmon. Chinook and flounder are present as well and were observed moving into the marsh with the daily tidal exchange. Fish species using the restored salt marsh include stickleback, cottids, cutthroat trout, steelhead trout, coho salmon, Chinook salmon, shiner perch, smelt, anchovy, and lamprey.

Monitoring began in 1992 on Knowles Creek in the Siuslaw River drainage when the fish trap was initiated to monitor the progress in fish habitat improvement activities. Three days out of every week in the spring and early summer we have students from Siuslaw and Mapleton middle school assist the fish trap operation. Splash dam logging during early European settlement yielded bedrock channels, from scrubbing the stream bottom and banks on Knowles Creek. It's not just the splash damming itself, but also in preparation for the splash damming, trees and other structures were removed to make the streams "splash dam ready".

In the mid 1980s, people began to realize that the Knowles Creek represented a very degraded stream system. It was determined that the number of coho migrating to the ocean was at 1% of historic levels and their sizes were small. A group of dedicated resource professionals realized the need to make change and showcase a whole watershed restoration project. They saw a stream ravaged by log drives, impacted by logging and road construction

and almost void of salmon. Their quest was to understand the environmental events that shape the river and learn about ways they could use those events to restore the river. It took another 7 years to study the watershed, clearly describe the problems, develop partnerships, outline and begin to implement a restoration strategy. The following shows the summary of the 16 years of monitoring.

Overall, there is an upward trend for all anadromous salmon species, but they all have a slightly different trend. Chinook numbers have been rising continuously (when you look at them by the cohort classes). Coho numbers have been rising or staying even. Steelhead/Cutthroat has been going up and down, but there seems to be an upward trend overall.

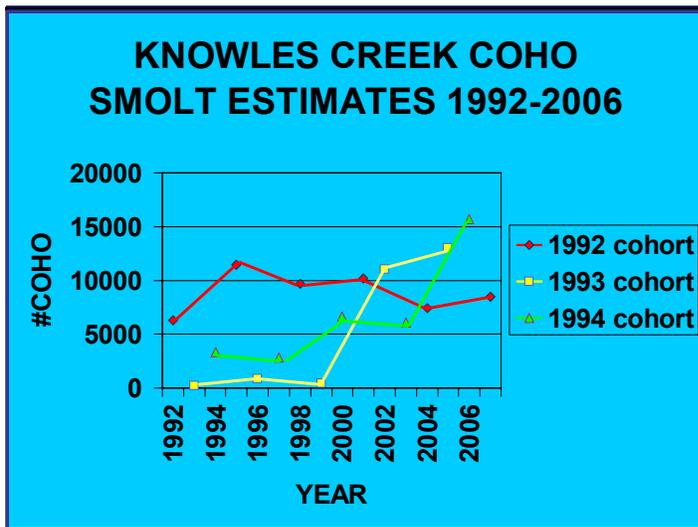


Figure 1: Coho smolt estimates for 1992 to 2006

If you look at them in 3 year classes, you can see that most of them are on a upward trajectory, especially the 1993 and 1994 cohort classes. The Knowles Creek fish trap monitoring has gone through intense climate extremes in terms of flood and drought events, so it can show what type of effects those weather events as well as habitat restoration efforts can have on their survival. Main drought years 1991-1993, 1998, 2003 (1952,1961,1965-1967). 100 yr flood events in 1996, 2005, 2006 (1952,1955,1957,1962,1963,1973).

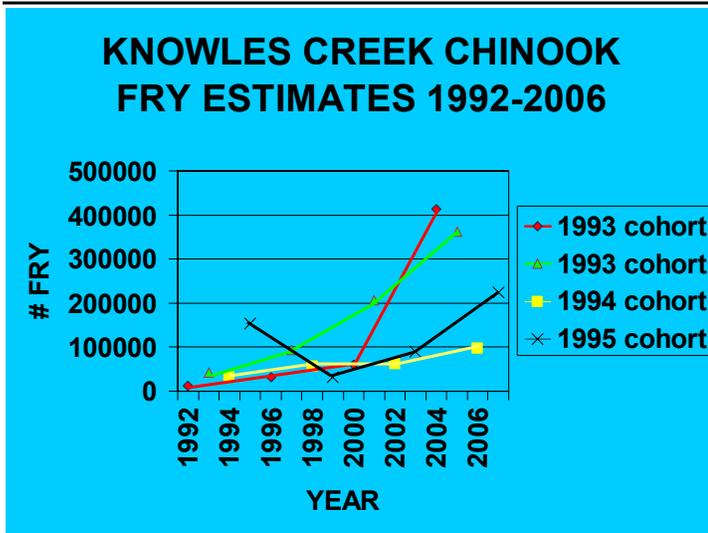


Figure 2: Chinook fry estimates for 1992 to 2006 in Knowles Creek

For all 4 cohort classes, the trend is up. The only downward trend seen here is the 1995 cohort between 1995 and 1999. Everything else is an upward trend.

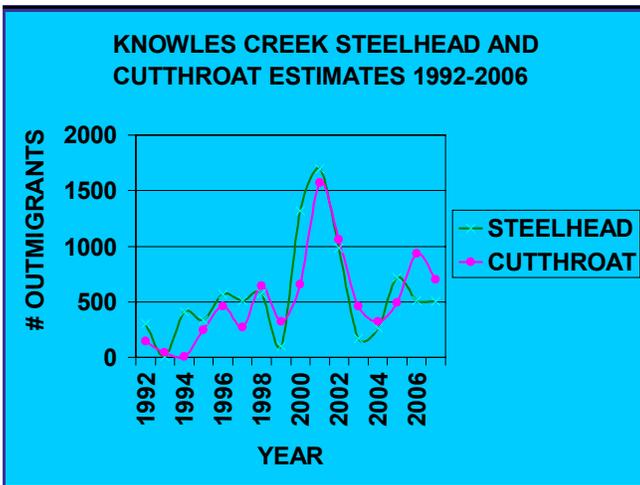


Figure 3: Steelhead and Cutthroat estimates for 1992 to 2006 in Knowles Creek

There is a similar pattern between Steelhead and Cutthroat numbers. Overall, they seem to be on an upward trajectory as well with a big jump in 2001. It could be that 1996 flood brought more woody debris and gravel and established more habitat and the adults that returned in 1997-98 produced fry that hung out in freshwater for 2-3 years and had much higher survival rates. A major flood can be destructive in the short term but beneficial in the long term.



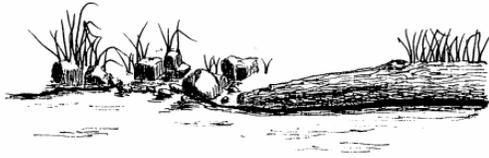
Photo 1: Slides of the Deaddog site located on the lower part of Knowles Creek

The first slide shows how much gravel was collected after the 1996 flood by the Deaddog Site (Lower Knowles). This site used to be all bedrock and collected gravel above the structures after the big flood event. We measured the amount of gravel by measuring the depth of the gravel collected and it amounted to 1,600 cubic yards of gravel just above the structure (equivalent to 160 dump truck loads). The second slide is a more recent photo. The summer of 2006 was the first summer stream flows in this part of the creek were not going subsurface during the hottest months. The summer of 2006 was the 8th driest summer overall in 55 years so that is impressive. We are hoping this is resulting from all the gravel that was collected over the years and slowly recharging the water table and affecting the water drainage characteristics.



Photo 2: Two slides, one of Knowles Creek above campground after 2006 summer. Second slide above campground after 2006 winter.

These slides show how much impact the recent restoration work (2006) had on the lower Knowles Creek. The November flood brought quite a bit of sediment and debris down by the structures we placed. During one spawning survey last winter, we observed 9 salmon (Chinook/Coho) carcasses directly (100ft) above and below this structure, which showcases how the structure is helping retain the spawned out salmon carcasses, adding nutrients to the habitat for the juvenile salmonids.



Monitoring Question: Lake Fish Habitat

How is the quality of lake fish habitat changing?

The primary influences on the quality of lake fish habitat are introduction of aquatic invasive species, chemical pollution, and increased rates of eutrophication caused by human nutrient inputs. Of these parameters only aquatic invasive species, particularly invasive plants, has been examined in any detail by the Forest. Although eutrophication has not been examined by the Forest, some inferences can be made from studies conducted at Tenmile Lakes.

Aquatic Invasive Species

Invasive species includes both plant and animal species that are both non-native and create a nuisance. Many invasive species come to dominate a landscape and alter the ecosystem to the detriment of other species or uses beneficial to humans. Some non-native species, such as tapegrass or water celery *Vallisneria americana*, are not invasive because they are readily eaten by waterfowl. Other species, such as warm-water game fish, may come to dominate an ecosystem to the detriment of other species such as salmon, but are considered a desirable species instead of invasive. In some instances native species may be considered a nuisance by some people but, because they are native, they do not fit the definition of invasive.

Species of Concern

A variety of aquatic invasive species are of concern in lakes on the Oregon Coast. These include species that are already present in some of the lakes and streams in the area such as New Zealand mud snails *Potamopyrgus antipodarum*, Brazilian waterweed *Egeria densa*, parrot's feather *Myriophyllum aquaticum*, fragrant water lily *Nymphaea odorata*, and Fanwort *Cambomba caroliniana*; and species not yet known to inhabit the area, but could become a nuisance if introduced, such as Chinese mitten crabs *Eriocheir sinensis*, zebra and quagga mussels *Dreissena spp.*, and hydrilla *Hydrilla verticillata*.

Aquatic Plant Surveys

The Forest contracted with Portland State University's Center for Lakes and Reservoirs (CLR) to conduct aquatic plant surveys in lakes on the central Oregon Coast with an emphasis on detecting the presence of aquatic weeds. In order to get a better understanding of the abundance and distribution of aquatic weeds, an effort was made to survey all lakes regardless of management jurisdiction. The surveys were conducted over three summers from 2003 to 2005. All told 134 separate bodies of water were surveyed for a total of 7,990 acres. Waterbodies ranged from unnamed ponds less than a quarter acre in size to Siltcoos Lake at 3,164 acres.

Findings

The surveys documented a total of 55 species of aquatic plants. Of these 48 species were native; 4 species were non-native, nuisance species (invasive); and 3 species were non-native,

non-nuisance species (non-invasive). Most of the invasive species were associated with lakes that had public boat ramps. This is most likely due to spread from plant fragments associated with trailered boats. Most of the larger lakes have one or more boat ramps and also contain one or more invasive plant species. Fragrant water lily, a species commonly cultivated in ornamental ponds, was more closely associated with lakes that had large number of lakeside homes. The most likely cause for this is the intentional release of this plant by homeowners for aesthetic reasons.

Brazilian waterweed was found in eight lakes and was always associated with a boat ramp.

Parrot's feather was found in six lakes.

Fragrant water lily was the most commonly found invasive species having been found in a total of 18 lakes and ponds.

Cambomba was found in three lakes including Sutton, Woahink, and Siltcoos lakes.

The affect that invasive aquatic plants are having on fish habitat is not entirely known but can be illustrated by one example at Loon (Erhart) Lake. The lake is a small, 5-acre lake just south of the Siltcoos River in Lane County, Oregon and should not be confused with the more well known and popular Loon Lake located south of the Umpqua River in Douglas County. Parrot's feather became established in the Loon Lake in the mid-1990's. The method of introduction is unknown. By 2003 the perimeter of the lake was ringed by parrot's feather, although the deeper middle section of the lake appeared to be free of the plant. The lake had been popular with anglers, but due to the difficulty of reaching open water from the bank, the Oregon department of Fish and Wildlife decided to no longer stock the lake and interest in fishing became less popular. In 2004 the water level in the lake was drawn down and hand removal of the weed was attempted. This control effort was unsuccessful because hand pulling was ineffective at removing the plant's rhizome growing in the bed of the lake.

Eutrophication

The Forest has not been systematically monitoring eutrophication rates associated with increased inputs of nutrients, however, inferences can be made by studies on the Tenmile Lakes conducted by the Tenmile Lakes Basin Partnership, and by delta monitoring in Mercer Lake conducted by the Forest.

The Tenmile Lakes study (Eilers et al. 2002) examined nutrient inputs from upstream forest and farm lands, and from areas along the lakeshore dominated by lakeside housing. In general the study found very little nutrient input from an unharvested forested watershed, an initial increase in sediment and nutrients from a recently harvested forest stand, a flush of nutrients associated with fall rains coming from predominantly agricultural (pasture) lands, and a relatively high contribution of nutrients during the summer months when stream flow is lowest associated with lakeside housing.

These nutrients affected Tenmile Lakes in various ways. Although much of the fall agricultural nutrient was flushed out of the lake during the winter, nitrogen was still high enough in the spring to cause an algae bloom (diatoms). By late summer the nitrogen level had decreased further and the ration of phosphorus had increased often resulting in blue-green algae (cyanobacteria) blooms that are in some years toxic. The study also examined

lake sediments and concluded that nutrient inputs and cyanobacteria abundance were substantially elevated above pre-development levels.

Other factors that were found to influence the rate of eutrophication in Tenmile Lakes included the channelization of streams, draining of wetland buffers, introduction of exotic aquatic macrophytes, and introduction of exotic fish. Stream channelization has increased erosion rates and led to increased sediment and nutrient transport to the lakes. The draining of wetlands to create farmland upstream from Tenmile Lakes has reduced the amount of sediment and nutrients filtered and sequestered from the stream. Aquatic macrophytes have the ability to draw nutrients up from lake sediments and incorporate them into their tissues. When the plants senesce in the fall the nutrients contained within them are made available through decay. Exotic macrophytes such as *E. densa* are believed to be at much higher densities and contain much more biomass than native species, and thus have increased the amount of nutrients released from lake sediments of Tenmile Lakes than in prehistoric times. Introduced fish species such as bluegill *Lepomis macrochirus* and largemouth bass *Micropterus salmoides* compete and prey on native fish species such as coho salmon *Oncorhynchus kisutch*.

Although many of the smaller lakes on the central Oregon Coast are surrounded by land managed by the Forest Service, most of the shoreline on the larger lakes such as Tenmile, Tahkenitch, Siltcoos, Sutton, and Mercer is in private ownership. Affects from Forest Service management to these larger lakes are mostly limited to upslope forest and tributary stream activities. By inferring from the conclusions reached by the Tenmile Lakes study, Forest Service projects are lessening nutrient inputs into the lakes from Forest Lands. Nutrient inputs from timber harvest activities are less than those experienced at Tenmile Lakes due to streamside no-harvest buffers and the lack of burning activities associated with thinnings. Projects such as the Bailey Creek restoration project at Mercer Lake reduce erosion from ditched streams and recreate nutrient retaining wetlands. However, even though these activities reduce nutrient loads to the larger lakes, they may represent a relatively small fraction of the total anthropogenic nutrient load.



Monitoring Question: Fish Populations

How are anadromous fish populations changing?

A comprehensive summary of the status of native fishes on the central Oregon coast is provided in the 2005 Oregon Native Fish Status Report, Volume I Species management Unit Summaries, published by the Oregon Department of Fish and Wildlife, Fish Division. Their coastal species management unit corresponds closely with the Siuslaw National Forest extending both farther North and South with data summarized for 19 major Ocean tributaries with 12 found on the National Forest. The interim status for the nine anadromous fish species found on the Forest are as follows:

Coastal Coho salmon are found in all major Ocean tributaries of the Forest and are most common in small low gradient streams. The interim assessment is Not at Risk with only the Salmon River population not meeting all criteria, passing only 3 of 6 criteria. The Coastal Coho salmon is presently not an Endangered Species Act listed species but recent court challenges may affect their status in the next few months.

Fall Chinook salmon are found in large streams and river mainstems with eight populations found on the Forest; Nestucca, Salmon, Siletz, Yaquina, Alsea, Yachats, Siuslaw, lower Umpqua, and a few small Ocean tributaries such as Tenmile Creek. They typically return to fresh water to spawn in October through December. Fall Chinook salmon are considered Not at Risk.

Spring Chinook salmon are found in the Nestucca, Siletz, and Alsea rivers of the Siuslaw National Forest and are presumed extinct in the Siuslaw River basin. They typically return to fresh water in March through June and spawn in the late summer and early fall. The Siletz population passed all six criteria. The Alsea population passed 4 of 6 criteria and the Nestucca population passed only 3 of 6 risk criteria. Coastal Spring Chinook are considered At Risk.

The Oregon coast is on the southern end of the Chum salmon distribution. Chum return to the lower reaches of small to moderate Ocean tributaries of the Oregon Coast in the fall of the year. Chums are found in the Nestucca, Salmon, Siletz, and Yaquina rivers. They are presumed extinct in the Alsea River but our monitoring consistently finds a few individuals in Canal Creek, a tributary of the Alsea River. They are considered extinct in the Siuslaw River basin. The Chum salmon are considered at Risk in the Coastal Species Management Unit by ODFW.

Winter steelhead trout are the most pervasive anadromous fish on the Siuslaw National Forest found in small to moderate sized river systems. They return to fresh water in the fall or winter and spawn in December through March. Natural spawning by hatchery fish is above 10% in the Siletz, Alsea, Yaquina, and Yachats Rivers causing these populations to fail

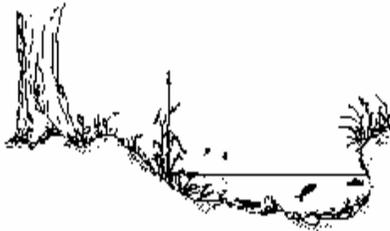
the population independence risk criteria. The coastal winter steelhead trout are considered potentially at risk in the Coastal Species Management Unit by ODFW.

Summer steelhead trout return to fresh water in March through November and spawn from January through April and are only found in the Siletz River drainage of the Siuslaw National Forest. Coastal summer steelhead trout are considered potentially at risk by ODFW.

Coastal cutthroat trout exhibit several life history strategies including anadromy and are found throughout the Siuslaw National Forest. They are not considered at risk by ODFW but little data has been gathered about the searun cutthroat life history type.

Coastal Oregon pacific lampreys as a group are considered at risk. They are present throughout most coastal streams but abundance is considered down even though population data is sparse.

Green sturgeon is found in estuaries on the Oregon Coast but do not spawn on the Siuslaw National Forest. It is a marine species that occasionally enters fresh water. A determination of their status was not made in the 2005 Native Fish Status Report. A conservative determination was made that their abundance might be low even though they are found throughout their historic range on the Oregon Coast.



Monitoring Question: Water Quality

Is the water quality of perennial streams as measured by changes in water temperature, being maintained as predicted?

Approximately 385 sites have been monitored for stream temperature across the Siuslaw National Forest since 1994. The sites have been monitored for 1 year at some sites to 11 years for long-term monitoring sites. Objectives for monitoring include watershed characterization, long-term monitoring to provide baseline monitoring for comparison to other sites, monitoring thinning units, and monitoring stream restoration projects.

In this report, the influence of intrinsic characteristics, such as shade and substrate, on stream temperature are discussed. Examples of specific project monitoring are also covered.

Variables that influence stream temperature

Several variables influence stream temperature. In the Coast Range, these variables include summer air temperatures, bedrock geology, aspect, shade, and streambed substrate. Of these, only shade and streambed substrate can be changed through direct human intervention.

Air Temperature

Stream temperatures in the Coast Range follow air temperatures, although air temperatures have a greater diurnal fluctuation. Streams in the Coast Range are dependent on groundwater recharge during the summer, and are not fed by snowmelt. Therefore, air temperatures have a greater influence in the Coast Range. During hot periods of the summer, stream temperatures go up, regardless of the amount of shade present. Seventeen sites have had paired air and water temperature monitoring. Two of the sites are shown in the following graphs (Figures 1 and 2).

Bedrock Geology

Stream temperatures appear to be partly dependent on the underlying bedrock. Approximately 75% of the temperature sites on basalt bedrock met the Oregon State Department of Environmental Quality (DEQ) standard, whereas only a quarter of the sites on the Tye Formation did. The Tye Formation consists of layers of sandstone, siltstone and shale, with very little pore space and water-holding capacity. The basalt, on the other hand, is more fractured, and can hold more groundwater.

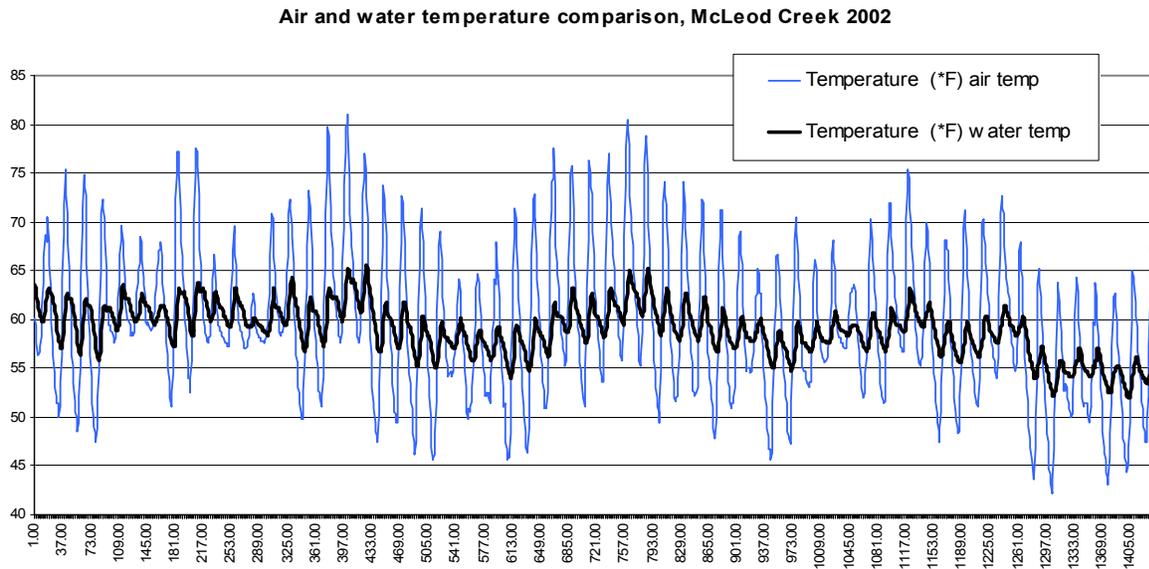


Figure 4: Graph showing the comparison of air and water temperature at McLeod Creek, a tributary to the North Fork Siuslaw River. Note that although the air temperatures have a greater diurnal fluctuation, the water temperatures closely follow the trends in air temperatures.

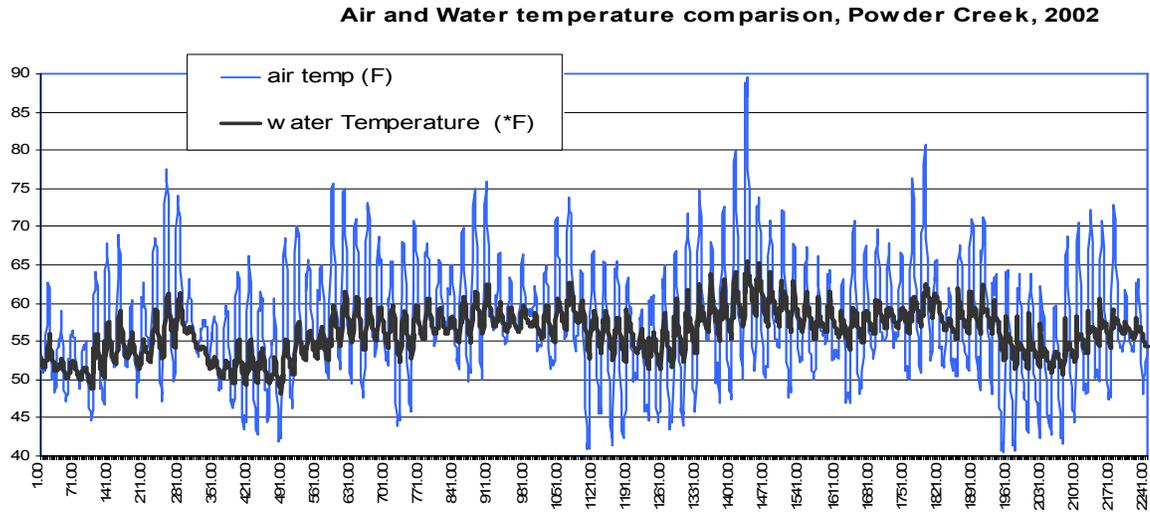


Figure 5: Graph of air and water temperatures at Powder Creek. Powder Creek is a tributary to the Nestucca River. It drains off the north slope of Mt. Hebo, and is in a roadless area. Conditions are optimal for maintaining stream temperature. Water temperature trends follow air temperature trends.

Streambed Substrate

Two monitoring sites suggest that the amount of substrate and gravels in the streambed is an important factor in controlling stream temperature.

Knowles Creek has been the site of ongoing restoration work for the past decade. The uppermost monitoring site in the watershed is a good example of the influence of substrate on stream temperature. In 1996, the 7-day average maximum temperature was 64.07. In 1998, a flood event brought in a large amount of new gravel and woody debris. In 1999, the 7-day average maximum stream temperature at this site was only 59.06F, a 5-degree drop in temperature. The site was monitored in 2000, 2001, 2002, and 2004. The 7-day average maximum temperature stayed between 58.4 and 60.7F during those years. It is assumed that more subsurface flow through the gravels decreased the stream temperature at this site.

In 2000, the West Branch of the North Fork Smith River was intensively monitored for stream temperature. At the same time, data was collected on percent shade over the stream, substrate, and width/depth ratios. Stream aspect was noted. This study showed that no one variable was responsible for the differences in stream temperature; however, conclusions could still be drawn about the how various factors may influence stream temperature.

A comparison of a site on the mainstem with a nearby tributary suggested that at this particular site, the amount of gravel in the stream may be as important as shade in controlling stream temperature. The mainstem had 43% solar radiation during the summer months, while the tributary had just 21% solar radiation. In the mainstem, however, 77% of the substrate consisted of gravels and 1% was bedrock, whereas only 13% of the substrate in the tributary was gravels and 19% was bedrock. The 7-day average maximum temperature in the mainstem was 61.2F; the 7-day average maximum in the tributary was 73.8F, over 10

degrees warmer. In addition, the mainstem flows south, whereas the tributary flows west, so the mainstem should be exposed to more solar radiation during the day.

Project Monitoring

Forest Stand Thinning

A thinning sale area was monitored for stream temperatures in the headwaters of South Fork Schooner Creek, Hebo Ranger District. The location of the temperature monitoring sites are shown on Figure 3, and the 7-day average maximum temperatures for each site are listed in the table below.

Location	Site number	1998	1999	2000	2001	2002	2003	2004	2005
Directly below Thinning unit	365	56.82		64.4	57.1	68.8	60.4	No Data	
Below private road And beaver pond	501			66.0					
Below meadow with Beaver ponds	502			65.5	66.2	64.1	67.7		62.2
Upstream of cool tributary	509						66.3		
Cool tributary	366	50.4	49.92				51.6		
Below cool tributary	510						63.8		60.7
Below second tributary	517								59.0

Table 1: 7-day average maximum temperatures during the summer for monitoring sites in South Fork Schooner Creek. See the text for details about each site.

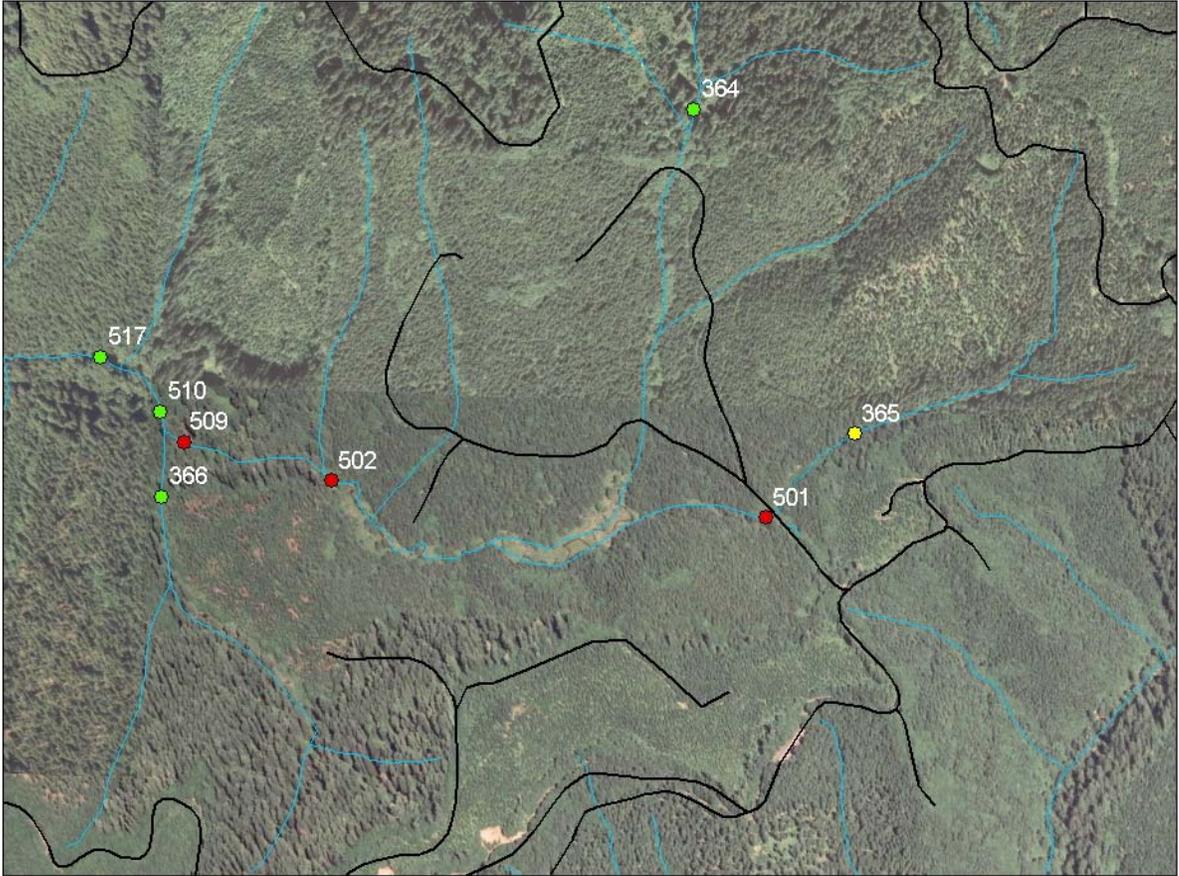


Photo 3: Aerial photo of the temperature monitoring sites in South Fork Schooner Creek watershed. The yellow points fluctuate above and below the 64F standard for 7-day average maximum temperatures from year to year. The red points are consistently slightly above the 64F standard. The green points are consistently below the 64F standard.

Results are discussed by site, starting with the one farthest upstream:

Site 365: This site was directly below a thinning unit, which was harvested in 1999. The temperature data has been highly variable. In 1998, the 7-day average maximum temperature was 58.6 F. A year after the harvest (2000), the temperature increased to 64.4; however, in 2001, the temperature was 57.1, cooler than the pre-harvest data. The fluctuations in temperature are hard to relate to the thinning activity. The variations may be related to slight differences in the location of the temperature monitoring equipment from year to year, or differences in air temperature from year to year.

Site 501: This site is located just downstream of a beaver pond. It was monitored for one year, and was 2 degrees above the state standard of 64F for the 7-day average maximum temperature.

Site 502: This site is located downstream of a series of beaver ponds in an open meadow. From 2000 through 2003, temperatures slightly exceeded the 64F state standard; however, temperatures were approximately 2 degrees lower in 2005.

Site 509: This site was paired with site 510 to bracket the confluence of a cool tributary with the mainstem. It is approximately 245 meters downstream from Site 502, and was still 2 degrees above the state standard.

Site 366: This site monitors the bracketed tributary. Water temperatures are consistently cool, around 50F.

Site 510: This site was paired with site 509 to bracket the confluence of a tributary with the mainstem. Stream temperature dropped approximately 1.5 degrees downstream of the cool tributary.

Site 517: Temperatures remain cool downstream of site 510 and the cool tributary.

Conclusion

Due to the interaction of several variables that influence temperature, e.g. shade, presence or absence of beaver ponds, type of substrate, and input from cooler tributaries, it is difficult to separate the effects, or lack of effects, from forest stand thinning on water temperatures.

Restoration Projects

Bailey Creek

Bailey Creek drains into Mercer Lake north of Florence, Oregon. The valley had been homesteaded and cleared for pasture, and the creek had been re-routed into a ditch along the side of the valley. Watershed restoration was begun in the mid-1990's with the design and construction of a new, meandering channel in the middle of the valley. The main flow of the creek was introduced into the new channel in 2000. The old ditch was plugged in several places, with ponds left where small tributary streams drained off the steep hillslopes. Riparian planting and some limited wood placement in the channel were also completed. Stream temperatures have been monitored to see what effects the restoration project has on water temperatures.

Table 2 contains four years of post-project temperature monitoring. This monitoring is focused on one site above the project area that represents the control, three sites in the design channel, one site in the smaller pilot channel near the lake, and one site in what became an arm of the lake after water was diverted into the new channel (See Map 2 attached for locations).

Map 2. Water Quality Monitoring Sites

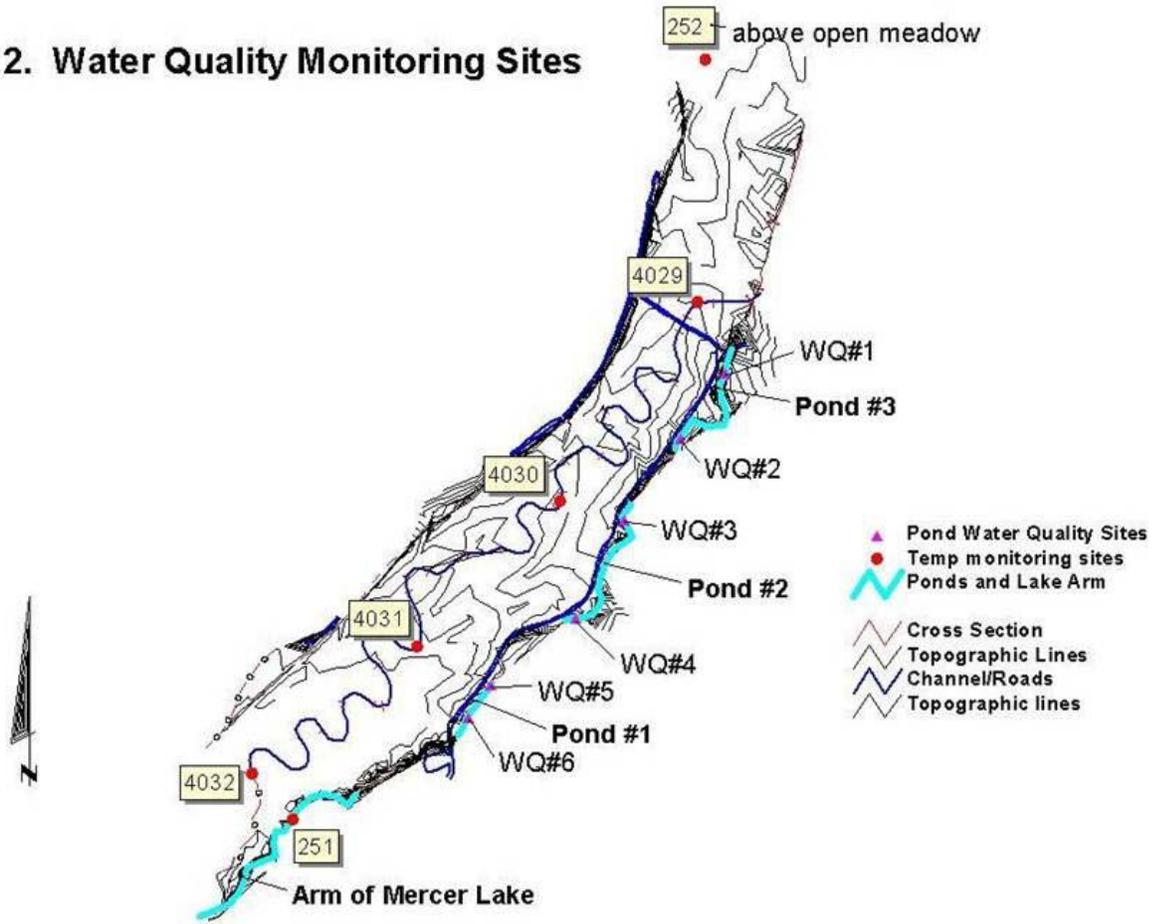


Figure 6: Map of the stream temperature monitoring sites in Bailey Creek.

Location	Year	# Days of Record	Instan. Max	Date	7-Day Average Max*	Dates	Days > 64	Days >70
Upper Bailey (Control – GIS #252)	2001	110	60.1	08/06/01	59.0	08/06/01-08/12/01	0	0
	2002	134	62.2	08/13/02	59.8	08/09/02-08/15/02	0	0
	2003	98	62.7	07/21/03	61.1	08/13/03-08/19/03	0	0
	2004	117	62.4	08/10/04	61.3	07/19/04-07/25/04	0	0
Upper Design (Pool A – GIS #4029)	2001	110	64.2	08/06/01	62.5	08/06/01-08/12/01	1	0
	2002	134	66.7	08/13/02	64.1	08/09/02-08/15/02	3	0
	2003	98	67.3	07/21/03	65.0	07/17/03-07/23/03	27	0
	2004	117	67.0	07/24/04	65.6	07/19/04-07/25/04	20	0
Mid-Design (Pool J – GIS #4030)	2001	110	67.4	08/31/01	65.9	08/29/01-09/04/01	24	0
	2002	134	71.4	08/13/02	68.5	08/10/02-08/16/02	47	2
	2003	97	73.5	07/30/03	71.3	07/26/03-08/01/03	68	17
	2004	117	71.1	08/10/04	69.6	08/07/04-08/13/04	38	6
Lower Design (Pool O – GIS #4031)	2001	110	69.5	08/06/01	67.5	07/24/01-07/30/01	45	0
	2002	134	75.1	08/13/02	71.9	08/09/02-08/15/02	62	10
	2003	97	75.7	07/21/03	73.2	07/17/03-07/23/03	82	35
	2004	109	72.3	07/23/04	71.1	07/20/04-07/26/04	60	17
Pilot Channel (very bottom of new channel – GIS #4032)	2001	110	70.5	08/06/01	68.5	08/05/01-08/11/01	61	2
	2002	134	73.8	08/13/02	71.0	08/09/02-08/15/02	59	7
	2003	97	72.9	07/21/03	70.8	07/18/03-07/24/03	68	6
	2004	109	70.8	07/23/04	70.0	07/20/04-07/26/04	59	4
Lake Arm (GIS #251)	2001	110	65.5	08/07/01	63.3	08/07/01-08/13/01	3	0
	2002	134	72.6	08/13/02	69.3	08/08/01-08/14/02	55	2
	2003	97	73.2	06/28/03	69.3	06/25/03-07/01/03	34	6
	2004	109	69.1	08/08/04	66.3	07/15/04-07/21/04	40	0

* values in red exceed 64°F, the state standard for this area.

Table 2. Summer/Fall water temperature monitoring in Bailey Creek at six locations in the project area, 2001-2004.

Given the fact that ponds were so thoroughly stratified with almost flat-line temperatures in the mid-50 degree range throughout 2001 monitoring, we have not continuously monitored the ponds.

As shown in Table 2, summer water temperature in the new channel is still high as of 2004, due presumably to lack of shade. Our initial documentation as part of our environmental assessment assumed at least a 10-year time period where temperatures would exceed state standards. As willows and riparian vegetation continue to grow, we hope to see declines in these temperatures.

Pre-project data showed a cooling of water in the old channel as it neared the lower valley, most likely due to ground water exchange with the lake. In 2001 we lost our Pilot channel probe due to beaver working in the willow patch at this site, but this probe was found in 2004 in working order. This new/old data now appears in Table 2 and helps complete the picture for post-project temperatures in this area. In 2001, stream heating continues to cumulatively increase all the way to the bottom of the Pilot channel as indicated by both the instantaneous maximum and the 7-day average maximum in Table 2. Since that time, the abrupt edge that once ended the channel at this location has aggraded and changed to the point that the transition is smooth and water now flows in several directions into a willow patch below. Data from 2002-2004 shows a slight 1-2 degree decrease in temperature at the

lower Pilot channel site, possibly indicating the reestablishment of ground water dynamics and exchange with the lake as flow shifted to the middle of the valley.

The lake arm site also shows some cooling in 2001-2004 data, regardless of the fact that it no longer receives flow. This indicates that ground water exchange is still occurring in this standing water and perhaps even seepage through the old plugged ditch.

Knowles Creek

The Knowles Creek restoration project has been ongoing since the 1990's, with an emphasis of adding large log complexes to the stream to add fish habitat diversity and capture gravels. Stream temperature monitoring has been part of the overall monitoring of this project. Temperature monitoring locations are shown in Figure 3., and temperature data is shown in Table 3.

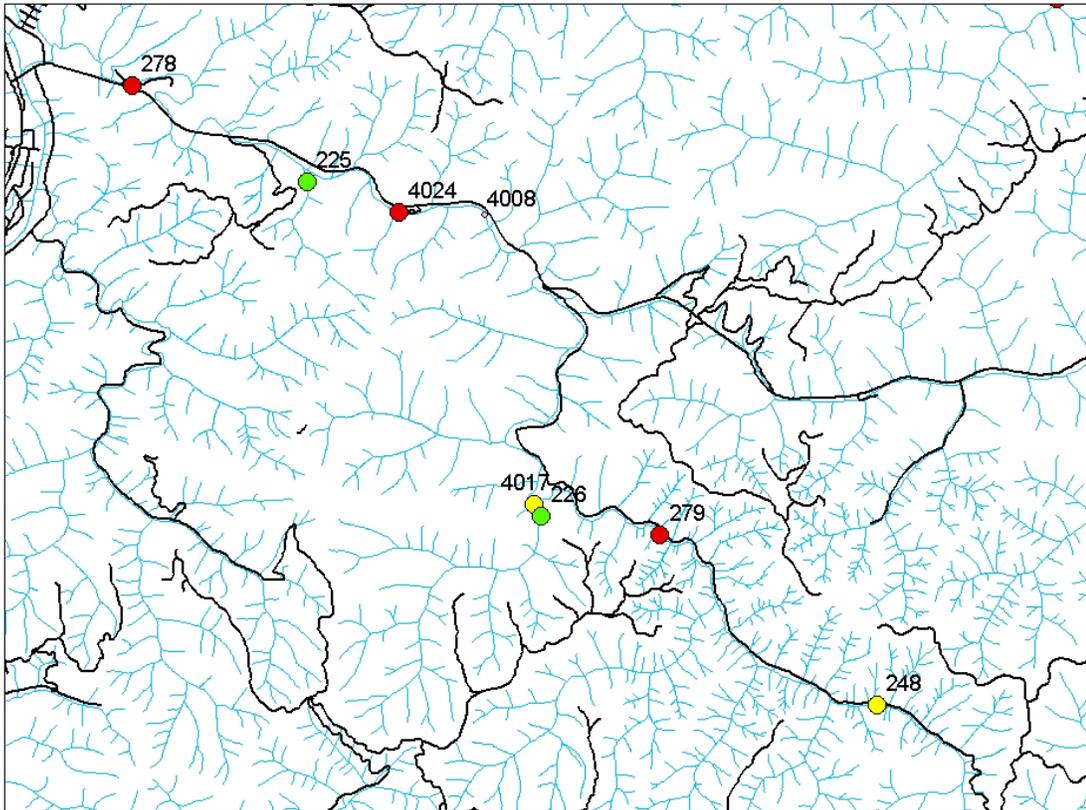


Figure 7: Map of the temperature monitoring sites in Knowles Creek.

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Location	Site number	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Upstream of FS boundary, below "old growth	248				64.07			59.06	60.2	58.4	59.9		60.7
Mid-Knowles Creek	279		71.1										
S. Sulfur Cr	226	59.2											
Just below Sulfur Cr	4017					63.55	66.1	66.5		66.5	69		72.2
300 ft downstream of campground	4024					66.7	69.5	66.7	69.4	70.8	72.2		
Lower Knowles Cr	278				74.5								

Table 3: 7-day average maximum temperatures for Knowles Creek

Karnowsky Creek

Karnowsky Creek is a tributary to the lower Siuslaw River. The valley had been cleared for homesteading, the creek had been re-routed into ditches on either side of the valley. The Karnowsky Creek watershed restoration project consisted, in part, of constructing a new meandering channel in the middle of a valley, adding large wood to the new channel and valley floor and replanting the pastureland with native trees and shrubs. Stream temperatures were monitored to see how the restoration project would affect water temperatures.

Water temperatures were very low in the old ditch prior to the project implementation in the lower valley, e.g. Site #5 in the mainstem below Skunk Cabbage Creek (Table 4). After the new channel was built, the temperature jumped due to lack of shade; however, it came down 13 degrees in the following year. As vegetation and shade increases, the water temperatures are expected to continue to improve. Water temperatures remained low in the upper valley and tributaries. Stream temperature monitoring will continue in the Karnowsky Creek valley for the foreseeable future.

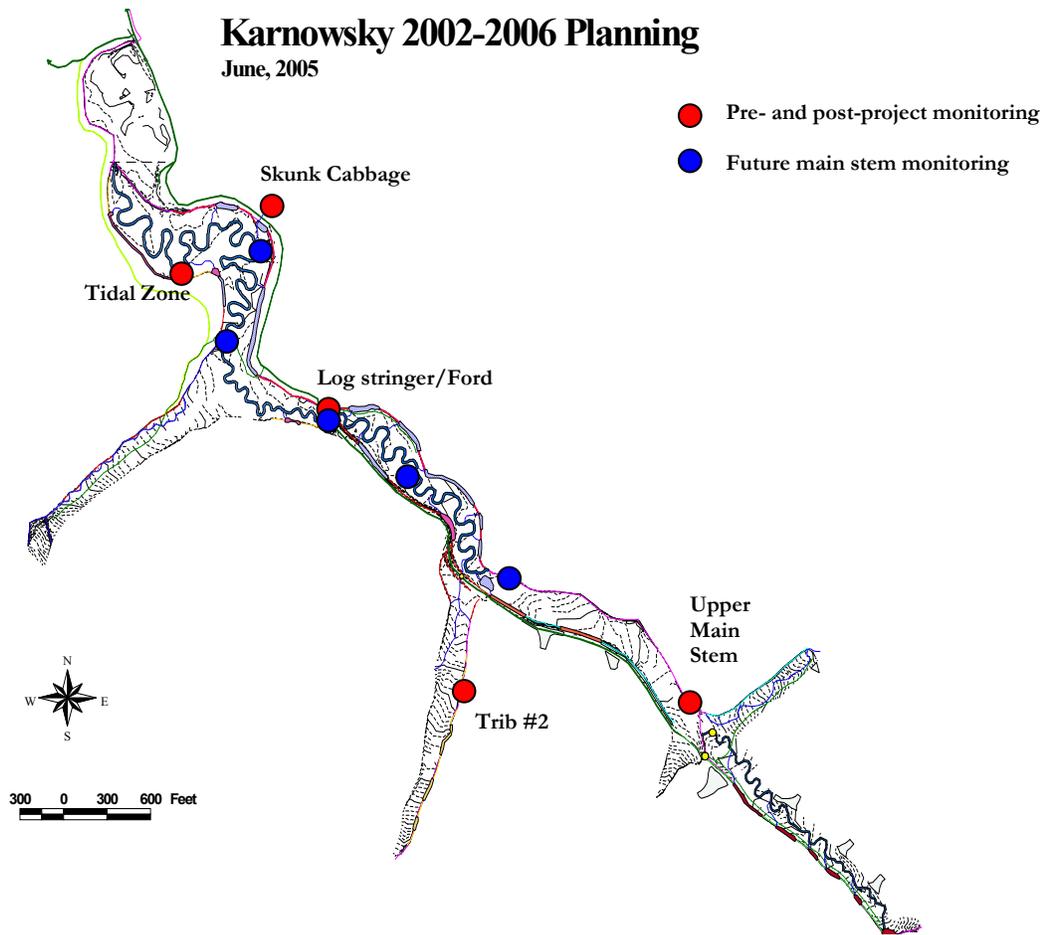


Figure 8: Map of stream temperature monitoring sites.

Site Name	7-Day Average Maximum Temperature by Year						
	2001	2002	project implementation	2003	2004	2005	2006
Karnowsky Cr. (1 of 5) Upper Perennial	59.1	59.5		52.7	59.2	56.3	no data
Karnowsky Cr.(2 of 5) Tributary 2	56.0	56.4		58.0	67.4	59.4	61.9
Karnowsky Cr. (3 of 5) Log Stringer Area	60.8	59.3		65.9	71.2	65.2	no data
Karnowsky Cr.(4 of 5) Skunk Cabbage Creek	58.4	57.8		59.3	60.0	57.6	66.9
Karnowsky Cr. (5 of 5) Mainstem Below Skunk Cab Cr	59.8	58.3	86.0	73.0	no data	no data	

Table 4: Stream temperature data from Karnowsky Creek and Tributaries

Terrestrial Group

The Forest Standards and Guidelines provide direction to enable the Forest to meet the goals of protecting and improving species populations and their habitat. Threatened, endangered, and sensitive species as well as ecological indicator species are monitored for species viability. Below is a summary of FY06 monitoring questions designed to assist the Forest Supervisor in determining the effectiveness of the Forest Plan Standards and Guidelines in meeting the Forest’s goals.

Monitoring Question: Forest Vegetation Condition

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



The Forest is actively managing plantations through thinning, releasing and under-planting stands to accelerate the development of young stands towards late-successional habitat. Snags and down wood creation through Stewardship contracts or service contracts is accomplished in conjunction with commercial thinning timber sales.

Table 5 shows the acres treated by activity type over the last three years.

Activity	Fiscal Year		
	2004	2005	2006
Commercial Thinning	1302 acres	1487 acres	1380 acres
Non-Commercial Thinning	3023 acres	2570 acres	1703 acres
Release	1021 acres	794 acres	115 acres
Planting	237 acres	560 acres	365 acres

Table 5: Acres by silviculture treatment since 2004.



Monitoring Question: Plantation Management

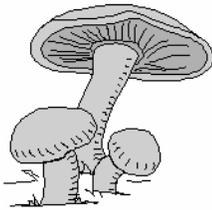
Are plantations being managed at prescribed density levels?

Plantations are being managed through non-commercial thinning and commercial thinning. See table above. Monitoring by Contractor Officer Representatives for non-commercial thinning and Timber Sale Administrators for commercial thinning ensure that prescribed density levels are being met.

Monitoring Question: Suitable Timber Land

Has the suitable timber land base changed?

Two types of changes usually result in an alteration to the total suitable acres for timber harvest; a change in the ability to adequately reforest a site within 5 years or a change in the timber harvest objectives for a piece of land. Changes to the suitability of lands for timber production have not occurred.



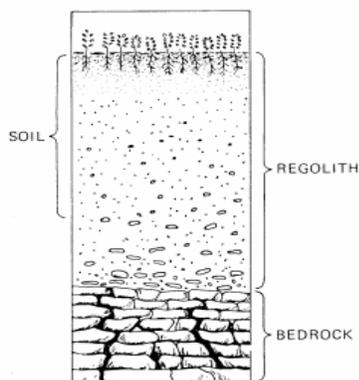
Monitoring Question: Special Forest Products

Is moss being managed for harvest and long-term sustainability while comply with Standards and Guidelines? Are there any negative effects from harvest to the long-term sustainability of Matsutake mushroom resources?

Commercial moss harvest was suspended on the Forest on August 22, 2005 until moss inventories and analyses were conducted. Inventory and analysis research from Jerilyn Peck to manage moss for long-term sustainability was utilized to establish commercial moss harvest levels for the Hebo Ranger District. Commercial moss harvest was reduced to 16,000 pounds per year on the Hebo Ranger District. No commercial harvest will be allowed on the Central Coast Ranger District until inventory and analysis is completed. The Forest completed the Commercial Special Forest Products Environmental Assessment in May 2007 incorporating these harvest levels.

The Matsutake mushroom harvest in the Oregon Dunes of 100 permits per year continues to maintain the long-term sustainability of the Matsutake. A DVD was produced showing proper harvest techniques in cooperation with John Getz which will be given to each permittee beginning in 2007 season.

Monitoring Question: Soil Productivity

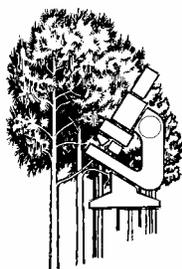


Is the long-term soil productivity of forest land being maintained?

Forest Plan Standards and Guidelines used to protect soil productivity are centered around limiting the extent of compaction and displacement related to the use of ground-based equipment on forest soils. The Forest Plan requires that no more than 20 percent of an area harvested by ground-based machines should be impacted by roads, landings, and skid trails on a given harvest unit.

Most yarding is accomplished by skyline or helicopter, however where ground-based equipment is utilized, skid trails are designated and approved by the Forest Service. The equipment is required to stay on the skid trails. This has led to soil impacts much less than 20 percent within harvest areas.

Monitoring Question: Research Natural Area Protection



Are Research Natural Areas being protected according to the RNA Establishment Records?

Research Natural Areas (RNAs) are established to conserve important natural ecosystems and to provide opportunities for research on the natural resources the USFS manages. Currently the Forest has 6 established RNAs

On the Forest, the major threat to RNAs is the invasion by European beach grass.. Sand Lake RNA and Ten Mile RNA are both subject to major alteration by this non-native species.

Sand Lake RNA

This RNA was established to protect the best parabola dune system in the Pacific Northwest (Wiedemann 1984), intact graminoid dune communities, and adjacent Sitka spruce forest. According to the RNA establishment record, the Seaside bluegrass-lupine (*Poa macrantha-Lupinus littoralis*) dunes plant community makes up about 100 acres (40% of the RNA) and is one of the largest remaining examples of this vegetation type in Oregon. The Red fescue (*Festuca rubra*) dune grassland occupies about 7 acres of the RNA (3%).

In the early 1990's, non-native, invasive European beachgrass (*Ammophila arenaria*) was noted as a minor presence. Scots broom was also present, but scarce. European beachgrass is now the major threat to the native dunes communities, while Scots broom is invading along the boundary.

Work completed in FY 2006 included vegetation monitoring and invasive plant treatment:

Vegetation Monitoring: In 2006, data was collected from three transects. Transect 1 has been established since the manual control of beachgrass began in 1995. A second transect (Transect 2) was established in 2006 within the southern portion of the RNA where the heaviest European beachgrass (*Ammophila arenaria*) infestation occurs. A third transect (Transect 3) was established in 2006 within the northern portion of the RNA where invasive species were largely absent or in extremely low abundance. Composition and percent cover data was recorded from 0.10 acre plots established along each transect.

Transect data shows European beachgrass cover to be greatest along Transect 2, and least along Transect 3. Transect 1, within an area where manual control of European beachgrass had previously occurred, was intermediate in beachgrass cover.

Species	Transect 1 (prev. pulled)			Transect 2 (high beachgrass)			Transect 3 (best condition)		
	cover	constancy	% veg	cover	constancy	% veg	cover	constancy	% veg.
<i>Ammophila arenaria</i>	1%	100%	11%	3%	100%	37%	<1%	100%	<1%
<i>Festuca rubra</i>	7%	100%	75%	4%	100%	47%	5%	100%	76%
<i>Poa macrantha</i>	<1%	92%	8%	<1%	67%	5%	<1%	67%	3%

Table 6: Species cover and constancy for three transects.

The other species of importance are *Solidago spathulata*, *Polygonum paronychia*, and *Glebnia leiocarpa*. *Glebnia* was the most constant (appeared in most plots) among these three with 92% constancy, followed by the *Polygonum* (present in 83% of the plots), and then the *Solidago* (58%). None of them were very abundant, about the same overall as *Poa*. *Lupinus littoralis* was present on only 33% of the plots. The non-native invasive *Hypochaeris radicata* was recorded on 37% of plots. Shore pine (*Pinus contorta*) was invading the dunes from the road edge and north forest margin. Pines were recorded on two plots (8% constancy). *Arctostaphylos uva-ursi*, also a sign of stabilizing dune, was recorded on one plot (4% constancy).

The *Festuca rubra* is associated with a more stable dune habitat than the *Poa macrantha*. If the mapping in the initial RNA description was accurate, there may have been a substantial shift in the native community. Future monitoring is important to follow trends among the native species as well as between natives and the invasive *Ammophila arenaria* (European beachgrass). If there really has been a shift to fescue there are a number of explanations, one of which is dune stabilization by beachgrass. Other explanations might be that sand movement typical of the *Poa* (seashore bluegrass) habitat is being inhibited by invading shore pine, perhaps combined with raised road bed along some parts of the highway bordering the RNA; or the bluegrass community may have been overestimated in the initial survey.

Invasive Species Treatments: European Beachgrass: Intensive manual control of beachgrass occurred within the central portion of the RNA. Less intensive manual control was used to sweep for beachgrass scattered in the north end. Within this area, 100% of the above ground plants were removed. As this is a rhizomatous species, it is expected that there will be resprouting and further control will be necessary. Data collected from monitoring transects in FY2007 will be used to assess the effectiveness of the previous year’s treatments. Transect 1 is in the heart of the main pulling project area. Transect 2 is in the area of the RNA that has not been part of the pulling project. Transect 2 is designed to transect to track effectiveness of herbicide use on the European beachgrass if funding for planning and

treatment becomes available in the future. It is serving currently to compare untreated beachgrass levels to the conditions in the pulling treatment area along transect 1.

Scot's broom: Mechanical control of Scot's broom was conducted along the margins of the dunal areas, concentrating on the northwest portion of the RNA. Follow-up treatment will be needed in FY 2007 to manually pull any seedlings that germinate from the established seed bank, and retreat older plants that have re-sprouted.

Removal of shore pine and scotch broom were undertaken on the northwest margins of the RNA dunes. European beachgrass was pulled in the north to central portion of the RNA, focusing on the original project area around Transect 2.

Shore pine, spruce, and scotch broom control will need to be extended for the next several years to decrease the major agents of dune stabilization in the RNA, along with European beachgrass control (hand and/or herbicide treatment).

Marys Peak

Marys Peak, though not a RNA, is a special area on the Forest and was a part of a meadow restoration project. Native fescue collected on Marys Peak was hand sown into burn pile sites 11/10/2005. Some other areas where young noble fir had been removed or low hanging branches of larger trees had been limbed were also raked, but not burned, and sown with the fescue.



Photo 4: Typical burned pile meadow site seeded with the native fescue. Note substrate effects on grass establishment. (Not a monitoring site.)

Two sets of monitoring plots were installed 6/16/2006: Each set had burned/seeded plots and control (natural meadow) plots. The plots were remeasured 7/24/2007. Percent cover for species occurring in the 1 square meter plots were recorded. In 2006, bare ground, litter, and duff were also recorded.

General observations: On forest edges and in

tree islands where large limbs and surrounding seedlings were removed, some understory recovery is apparent. Depth of litter and branch cover could decrease response to increased light levels and other microclimate changes. Raking and raking/seedling could be used as experimental treatments and monitored for effectiveness in retaining and increasing meadow species abundance.

Burned piles with large amounts of bare soil had the poorest revegetation. Presence of unburned duff and/or litter were indicators of vegetative recolonization from adjacent individuals and/or sprouting.

Fescue seeding had variable success. The seed appeared to have washed off the upper portions of sloping plots. In many old piles, the fescue sprouted where the seed collected in hollows or against barriers. Some patches had no fescue, and some were lush the second year. Seeding into burned pile sites along forest margins appeared promising. Raking similar sites and seeding should be tried for restoring meadow edges.



Photo 5: Fescue flourishes in burn site along the forest edge.

Rumex acetosella (sheep sorrel) is a weedy non-native that is successful at establishing after the noble fir are removed and into burn pile sites. Of the native forbs, *Smilacina stellata* (starry false solomon’s seal) often moves into the old pile sites from adjacent meadow or forest. It is a common species in the open meadow as well as the forest understory, so it seems to be adaptable to both conditions. *Carex californica* seems to be more successful in moving into the burn sites than the other native graminoids, at least as of year 2. Seed collection and trial plantings with this sedge and/or the *Smilacina* could be useful to supplement fescue seeding for the Marys Peak meadow restoration project.

Burned piles: Plot 1a burned hot, and litter and duff were nearly eliminated. Almost no seeded fescue established. By contrast, in 2a with much more organics on the surface, the fescue has been very successful, and other species are also establishing in the site. Plot 3 was intermediate in the bare soil after burning, and the fescue has increased significantly between year 1 and year 2. The native sedge as well as the non-native *Rumex* have also been successful in moving into the site.

Unburned ex-forest: Plot 4 was not burned before seeding. It is unclear whether that plot was also raked prior to seeding, since it had 98% noble fir litter in 2006. The seeded fescue was not present in 2007, though native species, especially the *Luzula* and *Carex*, have expanded into the site.

Plot data: The table below shows the 2006 and 2007 percent cover for each plot. Some differences in cover are due to phenology; plants in mid-June may have less cover than the same species in late July (bracken fern in 2b, for example). This difference may also explain apparent changes in control plots (1b, 2b, 5) where generally covers appeared much the same between 2006 and 2007.

Sitename	Treatment	cover61606	cover72407	veg	Scientific Name
MarysPeak1a	burned seeded	90		n	bare ground
MarysPeak1a		10		n	noble fir needle litter
MarysPeak1a		5		n	duff
MarysPeak1a		0.01	0.01	y	<i>Festuca rubra</i>
MarysPeak1a			2	y	<i>Rumex acetosella</i>
MarysPeak1b	meadow control	30		n	non-needle litter
MarysPeak1b		5		n	needle litter
MarysPeak1b		3		n	duff

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Sitename	Treatment	cover61606	cover72407	veg	Scientific Name
MarysPeak1b		0		n	bare ground
MarysPeak1b		45	30	y	<i>Smilacina stellata</i>
MarysPeak1b		35	40	y	<i>Carex californica</i>
MarysPeak1b		30	30	y	<i>Rumex acetosella</i>
MarysPeak1b		25	40	y	<i>Festuca rubra</i>
MarysPeak1b		1	5	y	<i>Luzula campestris</i>
MarysPeak1b		1	1	y	<i>Achillea millefolium</i>
MarysPeak1b		0.01	0.01	y	<i>Viola adunca</i>
MarysPeak2a	burned seeded	55		n	bare ground
MarysPeak2a		40		n	noble fir needle litter
MarysPeak2a		5		n	duff
MarysPeak2a		10	60	y	<i>Festuca rubra</i>
MarysPeak2a			1	y	<i>Rumex acetosella</i>
MarysPeak2a			1	y	<i>Smilacina stellata</i>
MarysPeak2a			0.01	y	<i>Abies procera</i>
MarysPeak2a			0.01	y	<i>Achillea millefolium</i>
MarysPeak2a			0.01	y	<i>Agrostis spp.</i>
MarysPeak2a			0.01	y	<i>Lilium spp.</i>
MarysPeak2b	meadow control	50		n	noble fir needle litter
MarysPeak2b		0		n	bare ground
MarysPeak2b		98	80	y	<i>Smilacina stellata</i>
MarysPeak2b		25	20	y	<i>Viola glabella</i>
MarysPeak2b		15	10	y	<i>Rumex acetosella</i>
MarysPeak2b		10	12	y	<i>Agrostis spp.</i>
MarysPeak2b		3	5	y	<i>Festuca rubra</i>
MarysPeak2b		1	25	y	<i>Pteridium aquilinum</i>
MarysPeak2b		0.01	2	y	<i>Carex californica</i>
MarysPeak2b		0.01	0.01	y	<i>Achillea millefolium</i>
MarysPeak2b		0.01	0	y	<i>Anemone spp.</i>
MarysPeak3	burned seeded	75		n	bare ground
MarysPeak3		25		n	noble fir needle litter
MarysPeak3		2		n	charcoal
MarysPeak3		1	18	y	<i>Festuca rubra</i>
MarysPeak3			5	y	<i>Carex californica</i>
MarysPeak3			4	y	<i>Rumex acetosella</i>
MarysPeak4	unburned seeded	98		n	noble fir needle litter
MarysPeak4		2		n	stumps
MarysPeak4		1		n	bare ground
MarysPeak4		5	20	y	<i>Rumex acetosella</i>
MarysPeak4		0.01	2	y	<i>Luzula campestris</i>
MarysPeak4		0.01	0.01	y	<i>Smilacina stellata</i>
MarysPeak4		0.01	0	y	<i>Festuca rubra</i>
MarysPeak4		0.01	0	y	<i>Lilium spp.</i>
MarysPeak4			1	y	<i>Carex californica</i>
MarysPeak5	unburned control	50		n	non-needle litter

Sitename	Treatment	cover61606	cover72407	veg	Scientific Name
MarysPeak5		4		n	noble fir needle litter
MarysPeak5		0.01		n	stumps
MarysPeak5		0		n	bare ground
MarysPeak5		30	40	y	<i>Carex californica</i>
MarysPeak5		30	30	y	<i>Festuca rubra</i>
MarysPeak5		15	20	y	<i>Rumex acetosella</i>
MarysPeak5		5	0	y	<i>Luzula campestris</i>
MarysPeak5		0.01	0.01	y	<i>Fragaria virginiana</i>
MarysPeak5		0.01	0	y	<i>Anemone spp.</i>
MarysPeak5			0.01	y	<i>Abies procera</i>



Monitoring Question: Northern Spotted Owl

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

Monitoring of northern spotted owl population size and reproduction for the Forest relies 100 percent on the current PNW demographic study.

Below is a summary of these date trends. The amount of suitable habitat on the Siulsaw has been relatively stable for the last thirteen years. It is unknown if the declining trends are the result of residual effects from past harvest activities, or from the increase presence of barred owls on the forest. In the future, the interagency Effectiveness Monitoring workgroup for the northern spotted owl is developing methods for monitoring habitat and restoration at the province scale. The Forest will adopt these procedures to determine trends at the Forest.

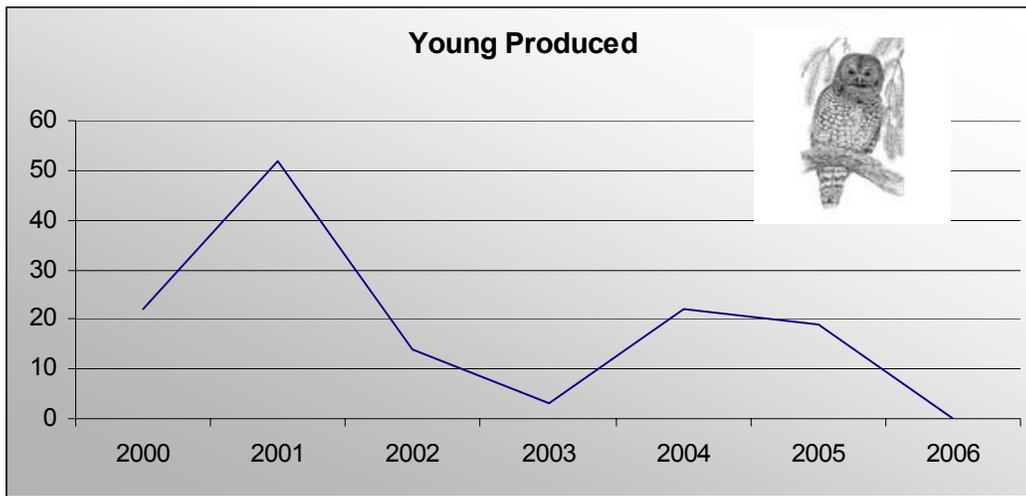
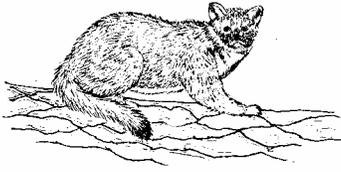


Figure 9: Trends in spotted owl population of young produced since 2000.



Monitoring Question: Marbled Murrelet

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

The PNW Research Station conducts effectiveness monitoring for marbled murrelets. Effectiveness monitoring for the marbled murrelet has two facets: (1) assess population trends at sea by using a unified sampling design and standardized survey methods, and (2) establish a credible estimate of baseline nesting-habitat data by modeling habitat relations, and use the baseline to track habitat changes over time. The monitoring objective is to determine the status and trends of marbled murrelet populations and nesting habitat in the Plan area.

Suitable habitat on the Siuslaw National Forest has not changed measurably in recent years, but is projected to increase over the next 5 decades with the designation of Late Successional Reserves as part of the Northwest Forest Plan.



Monitoring Question: Northern Bald Eagle

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

Bald eagle habitat and populations are monitored in cooperation with the Fish & Wildlife Service as funding allows. Bald eagles specifically use mature conifer or old growth habitat preferably along large rivers and major tributaries. The bald eagle habitat base (acres near large bodies of water and are capable of growing old growth habitat) on the Forest is fixed at approximately 153,200 acres. 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 percent of capable. This figure has not been changed measurably in recent years, but is projected to increase over the next 5 decades with the designation of Late Successional Reserves as part of the Northwest Forest Plan.

Bald eagles were removed from the endangered species list in 2007.

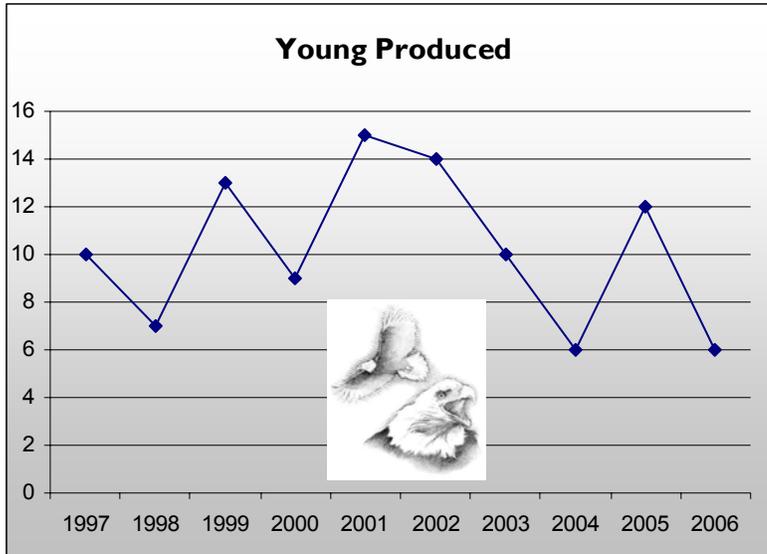


Figure 10: Trends in northern bald eagle population of young produced since 1997.



Monitoring Question: Western Snowy Plover

What are the trends in western snowy plover breeding and winter in populations on the Forest?

Snowy Plover Monitoring Efforts: The western snowy plover nesting populations is co-operatively monitored each year. The populations 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 over the short term. From 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.

Restoration Efforts

Over 80% of the open, relatively flat sandy areas where snowy plovers traditionally nested in coastal Oregon, have been invaded by European beach and succeeding vegetation over the years.

The Siuslaw National Forest has restored an average of 30 acres of nesting habitat each year for the past 7 years, reduced predation by enclosing virtually all known nests with protective fencing, removing predators from nesting areas and protected habitat by seasonally closing

nesting areas to recreation use by people and their dogs, horse, and motor vehicles to prevent disturbances in key areas.

Effective management of both plover habitat and human use requires a comprehensive strategy of public education, habitat protection and enforcement.

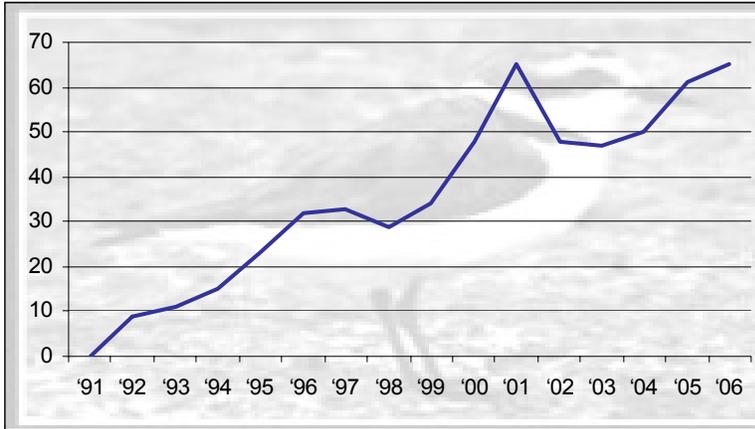


Figure 11: Western Snowy Plover Nesting Summary for Siuslaw NF

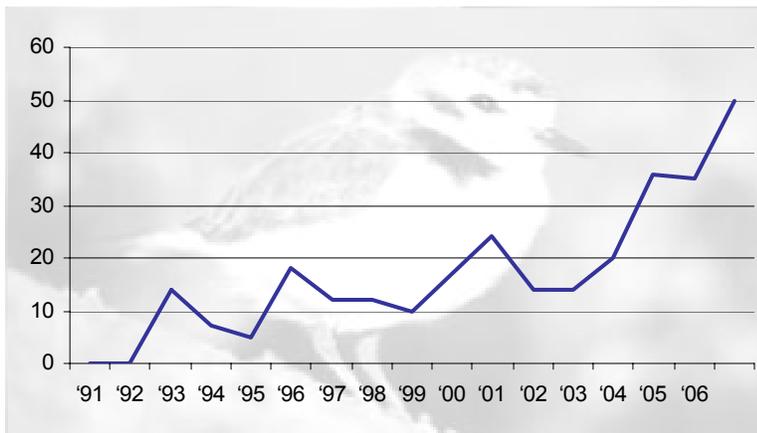
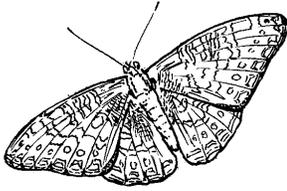


Figure 12: Western Snowy Plover Flegling Summary for Siuslaw NF



Monitoring Question: Oregon Silverspot Butterfly

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

Silverspot butterfly (*Speyeria zerene hippolyta*) and its larval food plant early blue violet (*Viola adunca*) are monitored annually where existing populations of the butterfly are found at Rock Creek/Big Creek, Bray's Point, Mt. Hebo, and Cascade Head. The previous Forest Monitoring and Evaluation Report for the Siuslaw National Forest for 2001-2004 compared the 2003 population status at each site to the mean population of the past 14 years. Rock Creek/Big Creek was 28% below the 14 year mean. Only 4 silverspot butterflies were observed at Bray's Point suggesting only a remnant population was present. The Mt. Hebo site was 6% above the 14 year mean. Cascade head was 44% below the 14 year mean.

Monitoring summarized in (Hammond, 2006) reported population levels dropping to low levels during the 2003-2004 years and critically low levels in 2005. Weather conditions along the Oregon coast were very unfavorable. The typical weather patten is a cool rainy winter and a reasonably warm and moist spring. During 2004 and 2005 we experienced a combination of heat waves along the coast during the summer with a very cool rainy spring. The summer drought causes the violet plant to desiccate and dry up by mid-summer leaving the larvae with a limited food supply.

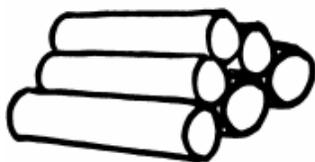
In a monitoring report to the Siuslaw National Forest (Pickering, 2005) reported the Oregon silverspot butterfly population in decline and may have been at its lowest level ever recorded. The value for all four sites in 2005 was 77% below the 1998 base-year standard. In the years 2003-2005 the silverspot populations suffered from adverse weather conditions at all known population areas. Hammond, 2006 reported the Mt. Hebo population dropped from previous highs of 3000-4000 butterflies to an estimated 400-600 in 2005. The Rock Creek/Big Creek population dropped from about 200-250 butterflies to about 50 butterflies in 2005. Weather conditions were more normal in 2006 and the Mt. Hebo population did appear to recover to 1000-2000 butterflies. The Rock Creek/Big Creek population did not appear to recover with an estimated 36 butterflies in 2006 putting this population near the brink of extinction.

Future efforts at Rock Creek/Big Creek will focus on larval and adult butterfly releases and habitat expansion in an attempt to achieve a minimum butterfly population of 400-600 butterflies in the future. Larval and adult releases along with habitat expansion are also planned for Bray's Point.

Social Group

This section of the monitoring report describes the resources and services the Forest provides its constituents. Recreation, timber, and roads provide direct benefits to many users of the forest. Benefits from other areas such as the cultural resources and research natural areas provide a more indirect benefit. Below is a summary of FY06 monitoring results designed to assist the Forest Supervisor in determining the effectiveness of the Forest Plan Standards and Guidelines in providing expected resources and services to our constituents.

Monitoring Question: Commodity Production



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

Volume sold and harvested on the Forest is monitored and reported yearly. From 1980 to 1990 the annual volume harvested ranged from 250 MMBF to over 400 MMBF per year. The development of the Northwest Forest Plan (1994) dramatically altered the Forest's prospect for future timber production. Timber sold from the Forest since the Northwest Forest Plan was implemented is reported in Figure 11.

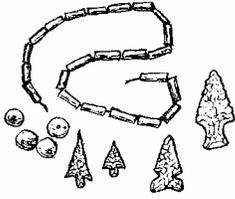
Special Forest Product sales through permits include alder puddle sticks, boughs, cascara bark, Christmas trees, firewood, greenery, Matsutake mushrooms, other commercial mushrooms, moss, posts and poles, roots, transplants vine maple limbs, seeds, and seed cones.

- The Forest sold 2332 permits for a total of \$105,748 in 2004.
- The Forest sold 2361 permits for a total of \$114,926 in 2005.
- The Forest sold 1223 permits for a total of \$105,860 in 2006.

Fiscal year	Sold ²
FY94	4.6
FY95	9.2
FY96	28.2
FY97	28.7
FY98	3.0
FY99	11.4
FY00	2.2
FY01	1.9
FY02	24.9
FY03	35.5
FY04 ¹	14.2
FY05	31.1
FY06	24.1

¹The Forest offered 25.8 MMBF and sold 14.2 MMBF of timber in 2004. Two sales received no bids.

²Volume sold in MMBF:
MMBF = Million Board Feet



Monitoring Question: Cultural Resources

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

Four prehistoric shell middens in the Cape Perpetua Scenic Area were evaluated and formally listed in the National Register of Historic Places providing enhanced recognition of their significance to the coastal landscape. On-site interpretive signing and guided walks to these and other cultural sites by staff at the Cape Perpetua Visitor Center provided detailed information about cultural lifeways and the public benefit of protecting these valued non-renewable resources.

Heceta House at the Heceta Head Lightstation continued to expand operations as a bed and breakfast, welcoming overnight guests and providing daily tours to visitors interested in this prominent historic resource. Granger-Thye receipts collected from the permittee funded maintenance at the site, ensuring historical integrity and preservation of the structures and continued accessibility to the public.

Final data recovery was completed a rapidly eroding prehistoric site on the lower Salmon River estuary. Attempts to preserve the site from storm surges and human-induced erosion were not viable. Excavation and analysis was selected as the preferred alternative for preservation of information embedded in the site, including a detailed record of affects of the last major near-shore earthquake and tsunami of 1700.

A GIS database of over 1300 historic Coast Range homesteads was compiled providing a useful tool for land managers to better understand the dynamic human alterations to the cultural landscape.

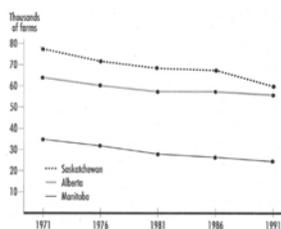


Monitoring Question: Ownership status

Are the goals of Landownership Adjustment Plan being met?

The Forest no longer has a current Landownership Adjustment Plan. Developed in the early 1990's the Landownership Adjustment Plan is out of date relative to current landownership adjustment objectives and priorities. The Northwest Forest Plan (1994) amended the Siuslaw National Forest Land and Resource Management Plan (1990) changing the intent and focus of land adjustment efforts. In the past decade, based in part on Northwest Forest Plan direction and objectives, Forest acquisitions and land adjustments have focused primarily on riparian and stream restoration opportunities.

Current Forest land adjustment priorities and objectives are being met, although they are not the ones originally set out in the Landownership Adjustment Plan. Recent land acquisitions include the Fawn Creek property (93.61 acres), the Fivemile-Bell property (624.80 Acres) and the Drift Creek of the Alsea property (1342.16 acres). The Forest has active stream and/or riparian restoration projects currently under way on all of these parcels.



Monitoring Question: Local Economies and Communities

Are local natural resource based economies and communities healthy

Stewardship contracting has helped develop local resources for stream restoration, road decommissioning and timber sales. The Resource Advisory Committees have utilized local resources for projects.



Monitoring Question: Public Coordination, Cooperation and Collaboration

Do Forest activities involve a broad range of publics and high level of interagency cooperation and collaboration?

The Coast Range Provincial Advisory Committee meets quarterly. Province Advisory Committee members have helped play an important part in the implementation of the Northwest Forest Plan. Advisory committee members help identify important forest-related matters that affect themselves, their colleagues, fellow tribal members, friends, and neighbors.

The Oregon Coast Province is bordered on the west by the Pacific Ocean, on the north by the Columbia River, and on the east by the crest of the Coast Mountain Range including all but a small portion of the Siuslaw National Forest. On the southern border it takes in the lower portion of the Umpqua River near Reedsport and crosses the North Umpqua River at Melrose just west of Roseburg. From there it passes just north of Wilber and on up to Sutherlin where it turns east up to Scott Mountain. From Scott Mountain it runs northeast then north to Harness Mountain where it turns west back along the Crest of the Coast Range north to the Columbia River. The Oregon Coast Province includes the following hydrologic units: Necanicum, Nehalem, Wilson-Trask-Nestucca, Siletz-Yaquina, Alsea, Siuslaw, and Umpqua. The Oregon Coast Province is approximately 3,918,700 acres including 540,200 acres of BLM ownership, 592,800 acres of USFS ownership, 100 acres of NPS ownership, 100 acres of USFWS ownership, and 1,400 acres of DOD ownership

To get the best information and to ensure that all views and interests are represented in the planning process, federally chartered advisory committees of up to 29 members were appointed from each province area (Currently 20 members). As their name implies, advisory committees are responsible for helping their province teams get the best information as

quickly as possible about all aspects of their province. Each advisory committee member is expected to accurately represent the views of their community, tribe, state and local government, timber industry interest, recreation group, or environmental interest.

The Siuslaw Resource Advisory Committee meets yearly to review and accept project proposals. Public Law 106-393 creates a mechanism for local community collaboration with federal land managers in recommending projects to be conducted on federal lands or that will benefit resources on federal lands. The geographic boundaries of the RACs are generally aligned with county boundaries, and each RAC is assigned a Designated Federal Official (DFO) to serve as the point of contact.

The committees' duties include reviewing proposed forest management projects in accordance with the Act and making recommendations to the Forest Service and providing opportunities for interested parties to participate in the project development process.

These committees are to be balanced and diverse with equal representation from industry, environmental groups, elected officials and local people. The composition of each RAC is to be balanced according to the following three interest categories identified in Public Law 106-393

There are three Stewardship Groups on the Forest, the Siuslaw Basin, Alsea and Marys Peak. These groups generally meet monthly.

Stewardship groups are collections of individuals and organizations from the local area working with the Forest Service and Bureau of Land Management to promote forest restoration that meets the needs of the local community.

The Forest participates in the Planning, Appeals, Litigation System database. This quarterly database lists the current projects on the Forest. The information is available on the Forest website. This information is also published in the Forest Update that is mailed to about 140 agencies, groups and individuals each quarter. Scoping agencies, groups and individuals for specific projects through letters, news releases and ads provides opportunities for additional site-specific participation.

A team of students was selected for an intensive eight week project over the summer of 2006 to develop a restoration plan for the Salmon River Estuary. The student team looked at the lower Salmon River watersheds to understand how the uplands affect the estuary as well as the general condition of the estuary.

The goal of the project was to develop a planning document that would review historic context, characterize current conditions, and make recommendations for future restoration and management in the Lower Salmon River.

The project reflected community ideas and needs for meeting the goals of the Cascade Head Scenic Research Area Act and United Nations Biosphere Reserve objectives.

The student team received assistance in this effort from the Sitka Center for Arts and Ecology, the Salmon-Drift Creek Watershed Council, local residents, non-governmental

groups, tribes and state agencies. The eight week project resulted in a planning document with recommendations for future restoration and management in the Lower Salmon River.

The planning document provides an historical landscape perspective and characterizes current political, cultural, and ecological conditions in the study area. By looking to the past, this project respects the diverse cultural heritage of indigenous and pioneer occupants of the land, as well as current landowners and stakeholders. Based on an integrated process of research, field studies, and public input, recommendations are presented to assist stakeholders in identifying key actions to enhance ecological function across the landscape.



Monitoring Question: Recreation Diversity

Is the diversity of recreation opportunities provided for in the Forest Plan being supplied and used?

No monitoring of Forest recreation sites for recreation opportunity setting consistency was done in 2005 or 2006. Individual project planning included assessment of consistency with recreation setting. Generally, the diversity of settings and opportunities outlined in the Forest Plan are being provided. All settings and opportunities being provided are also being used.

Since 2002 the Forest recreation is systematically measured every five years. The first report was published in 2002 and the second, still in draft form, will be published soon. For 2006, this system, National Recreation Visitor Use Monitoring Program, counted and surveyed recreation visitors - in way that was both more specific and more broadly systematic - covering recreation sites and use during the year. A report is now in its final draft, and will soon be available that gives a clearer idea of Siuslaw National Forest visitor uses numbers, where Forest visitors travel from, their interests in the Siuslaw, and how and where people use Siuslaw National Forest as a place for recreation.

The National recreation use report for the Siuslaw for 2002 (2001/2002) was compared with projected second decade use projections given in the Forest Plan. The results of that report are shown in Figure 12, and Figure 13.

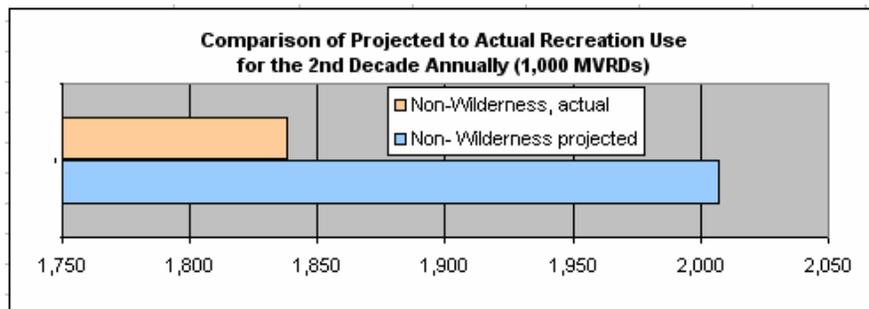


Figure 12: Comparison of Projected to Actual Recreation Use for the 2000 to 2010 for non-wilderness use.

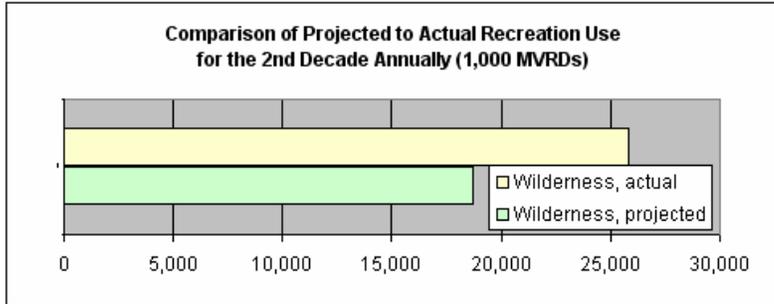


Figure 13: Comparison of Projected to Actual Recreation Use for the 2000 to 2010 in wilderness.

Projected use for the 2nd decade for the four remaining categories is listed in Figure 14. Actual recreation use in these categories for 2006 is not final and so is not provided.

Figure 14: Additional projected recreation use

Developed Recreation, projected for 2nd decade	904.1 MRVDs annually
Roaded Natural and Rural, projected for 2nd decade	622.0 MRVDs annually
Semi-primitive Non-Motorized, projected for 2nd decade	30.4 MRVDs annually
Semi-primitive Motorized, projected for 2nd decade	450.6 MRVDS annually

** Estimated numbers, source: U.S.D.A. Forest Service, Region 6, “National Visitor Use Monitoring Results for Siuslaw National Forest,

Traffic counts and fee collections records have been and continue to be the records of recreation use kept on the Forest. Also available are Oregon Department of Transportation road counts for state highways traveling through the Siuslaw.



Monitoring Question: Recreation Off-highway Vehicles

Is off-highway vehicle use taking place as intended in the Forest Plan?

Off-Highway Vehicle (OHV) use is generally occurring as intended in the Forest Plan. The Forest offers designated riding areas in 3 areas at the Oregon Dunes NRA, at Sand Lake, at Joshua Lane and at Collard Lake. The riding areas at the Oregon Dunes and at Sand Lake are extremely popular. The Forest monitors use relative to capacity in these areas and uses holiday weekend permits to limit use numbers at Sand Lake. NRA riding areas are approaching, but have not yet exceeded planned capacity (average of 2 riders/acre), as additional OHV campgrounds and staging facilities are constructed on non-federal lands immediately adjacent to the NRA. Joshua Lane and Collard Lake are small riding areas (<500 acres) in the Mapleton Complex. They are used by small numbers of local riders. Lack of adequate access to Collard Lake and increasing residential development around

Joshua Lane (with associated OHV noise and trespass issues) may cause the Forest to amend the Forest Plan to close these areas to OHV use.

Within designated riding areas regulations such as alcohol prohibition, engine noise standards, sand camping restrictions, and closure areas (e.g. noise buffers, tree islands, wetlands, etc.) are generally respected by visitors. Violation notices are issued when infractions are observed, but compliance is generally acceptable. Visitor safety and resource protection are at acceptable levels.

There is a small amount of unauthorized OHV use in non-designated areas on the Forest, such as around South Lake on the Hebo RD and at Woods Creek Trailhead on the Central Coast RD. There is unacceptable resource damage occurring in these localized situations. The Forest plans to remedy these situations with implementation of the new Travel Management Rule in 2008-2009. The same effort will identify which Forest System Roads will provide “mixed use”, including highway vehicles and non-street legal OHVs. Currently, under state motor vehicle regulations, which have not yet been modified by the Forest, non-street legal vehicles may operate on any gravel or native-surface Forest road. Travel Management will allow the Forest to designate “mixed use” only on those system roads where the Forest believes it can occur safely.



Monitoring Question: Accessibility

Are Forest recreation facilities, building, administrative sites and environmental education programs usable by all people regardless of physical and mental ability?

The Siuslaw offers a wide variety of recreation opportunities for people with disabilities and limited abilities. The Forest Accessibility Transition Plan, 1996 is used as a benchmark from which to measure improvement. In the Monitoring Report of 2004 we reported the completion of Devil’s Churn Overlook on Cape Perpetua among others. The Forest reviewed progress to date since 2004, regarding recreation sites and administrative facilities on the Siuslaw National Forest being brought to standard in accordance with the Forest Accessibility Transition Plan, 1996.

While few campgrounds are accessible as seen in Figure 15, progress has been made in making some individual camp units within campgrounds accessible, and in providing accessible restrooms.

Figure 15: Access survey of recreatopm sites.

Campgrounds	A	US	NA	NAC
Hebo Ranger District	0	0	8	0
Central Coast Ranger District	2	2	19	0
Day Use Sites	A	US	NA	NAC
Hebo Ranger District	0	1	1	0
Central Coast Ranger District	7	17	15	2

In 2005 and 2006, improvements were made to two trails in the Cape Perpetua Scenic Area. Cook’s Chasm Trail, leading from the Cook’s Chasm Bridge to a view point viewing the Spouting Horn was regraded and resurfaced, and an accessible viewpoint along the trail was constructed. Whispering Spruce Trail was given new surfacing and stone curbing which meet access standards. It has slopes of up to 12 percent.

Access improvements were made in the Horsfall Beach area. An accessible boardwalk and platform was constructed from the parking lot to the top of the foredune to facilitate ocean viewing. In 2006, an All Terrain Vehicle staging area was constructed in the Horsfall Area, called Bull Run Staging Area. Currently, the Forest Service is working on another staging area in the Horsfall area called Old Bark Road staging area. These construction projects include installing restrooms that meet access standards.

For Sand Lake Campground, improvements are in the planning stage, and accessible fire rings will be installed in 2008. At Hebo Lake Campground, accessible improvements are being planned for construction in 2008. These include access to the lake side, and day use parking.

Since the last monitoring report, national guidelines for accessibility have been reviewed and updated. Recommendation include

- New guidelines need to be fully incorporated into site design for Forest sites, as appropriate to the various ROS settings on the Forest. (Forest Service Outdoor Recreation Access Standards and Forest Service Trails Access Standards, 2006).
- More campsites meeting access standards continue to be needed.
- Continue work to bring Forest recreation sites to standard.

Forest Trails are being surveyed and information about them documented as part of the updating information about National Forest recreation constructed facilities. This information will include information about slope and tread and other conditions, which describe trails, and help people know how accessible or usable they will be to them, and helps the Forest Service plan for improvements to accessibility.

Environmental Education

Forest environmental education programs are available to people with disabilities to a limited scale.

In 2005/2006, the staff at the Cape Perpetua Interpretive Center had its most popular film, "Discovery at the Edge," closed captioned for the hearing impaired. Also trail improvements at Cape Perpetua trail are listed on the previous page. Accessible parking was also provided as best possible considering topography. Parking is located in the parking lot above the Center, and reaching the Center by paved access route, crossing the entrance road.

The deck around the outside of the visitor center was replaced, and made fully accessible. In place of solid walls around the edge of the deck, metal railings were used improving viewing opportunities for people in wheelchairs. The theater within the Center was not constructed to be accessible. The seats in the first, upper row are removable to allow use by people who use wheelchairs.

Outdoor guided walks are not accessible because trails around the Interpretive Center are not accessible. The Center offers the alternative of interpretive programs given on the Center's deck or around the parking lots for those who can not access the trails or travel up and down them. (Sometimes the Center has staffing limitations.) For groups, the Center has had people from the Job Corps to give assistance to people in wheel chairs on sections of the trails.

The Interpretive Center has a computer with programs covering subjects such as field trip into the sea, weather, navigation, and environmental issues.

At Hebo Ranger District, environmental education materials were provided to groups and individuals. Needs for equipment to make the programs available to all who attended were addressed on an individual basis, as a need was known.

At Oregon Dunes National Recreation Area, displays in the front reception area meet physical access standards and are multi-media. The audio portion of the interpretation is activated by the presence of someone at certain points through the display, so does not require use of hands or sight. The theater is level. The movie shown has closed captioning available. The door is not push button, but personnel are always available, and it can be propped open.

The Forest will continue to make efforts to provide environmental education programs in which everyone can participate.



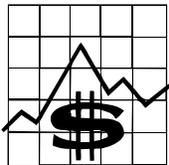
Monitoring Question: Access and Travel Management

Is the plan for long-term access roads sufficient for general public access needs?

The existing road system continues to be downsized to meet resources concerns while still meeting public needs. Between 2005 and 2006, 65 miles of road were decommissioned. During the same time period the maintenance level was reduced on approximately 80 percent of Key roads on the forest. The forest currently operates under a Key road non Key road system. The key roads were reduced from 750 miles to 110 miles. These are maintenance level 3-5 roads, maintained for recreation use and public access. The non key roads are 2100 miles of maintenance level 1 and 2, which are those maintained for project use and intermittently open during periods of project activity.

Other Group

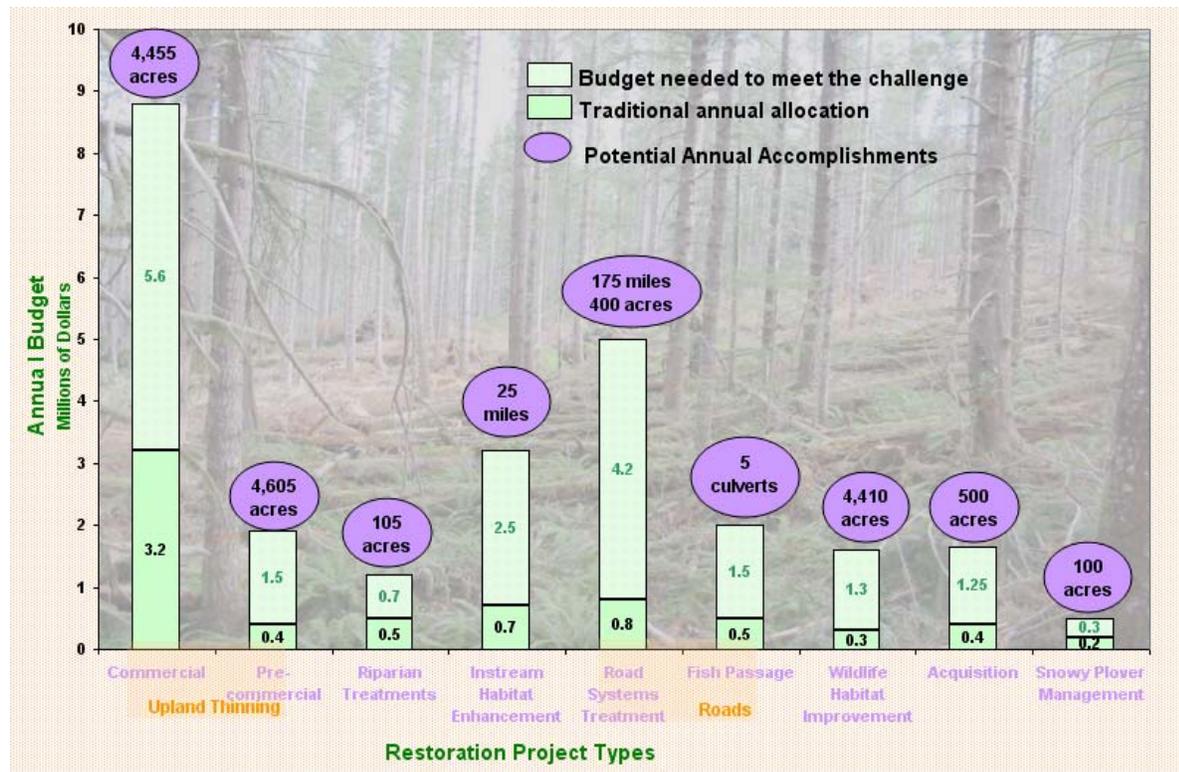
The Forest Standards and Guidelines provide direction to enable the Forest to meet the goals of finding and implementing new ways of meeting Forest goals. Below is a summary of FY06 monitoring questions designed to assist the Forest Supervisor in determining the effectiveness of the Forest Plan Standards and Guidelines in meeting the Forest’s goals.



Monitoring Question: Programs and Budget

Are Forest programs and budgets providing the needs for the Forest Plan implementation?

The Forest budget has lagged behind the identified needs. For instance, in August 2006, the Forest developed the Meeting the Challenge brochure which compared the annual budget with costs related to identified restoration projects. The graph below is taken from Meeting the Challenge.



List of Contributors

The principal contributors to the 2006 Monitoring and Evaluation Report are listed below. Please contact one of us if you have questions or want further information about the reported results.

Joe Acosta	<i>Engineer</i>
Pat Babcock	<i>Resources</i>
Sharon Cocharane	<i>Lands</i>
Frank Davis	<i>Interdisciplinary Team Leader</i>
Jessica Dole	<i>Landscape Architect</i>
Barb Ellis-Sugai	<i>Hydrologist</i>
Mike Harvey	<i>Recreation</i>
Stu Johnson	<i>Silviculturist</i>
Cindy McCain	<i>Ecologist</i>
Mike Northrop	<i>Fisheries Biologist</i>
Jody Quamstrom	<i>Public Affairs Specialist</i>
Allison Reger	<i>Writer/editor</i>
John Sanchez	<i>Fisheries Biologist</i>
Phyllis Steeves	<i>Cultural Resources</i>
Paul Thomas	<i>Wildlife Biologist</i>

Acknowledgments

Monitoring activity on the Forest involves many people, far too numerous to list here. A few of these contributors or their organizations are acknowledged in the Findings section as their related work is presented. In addition, many volunteers contributed their time and expertise, as did Ranger District employees across the Forest.

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