

United States
Department of
Agriculture
Forest
Service



Monitoring and Evaluation Report

Pacific
Northwest
Region



Siuslaw National Forest Fiscal Year 2008



*Baker Beach, Siuslaw National Forest
Central Coast Ranger District-Oregon Dunes National Recreation Area*

August, 2009



Thank you for taking the time and interest in reviewing the results of the Siuslaw National Forest 2008 Monitoring Report. .

The report focuses on key monitoring activities and findings since the previous publication in 2008. It also summarizes some of our most successful restoration projects. As you read the report you will see where we are using our past successful restoration projects to build upon and improve restoration projects in the future.

The Forest still remains diligent in eliminating threats to the Forest including invasive species which is discussed under 'Lake Fish Habitat' and preventing the rising of stream temperatures above State Standards, where we discuss under the section titled 'Water Quality'.

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 2014.

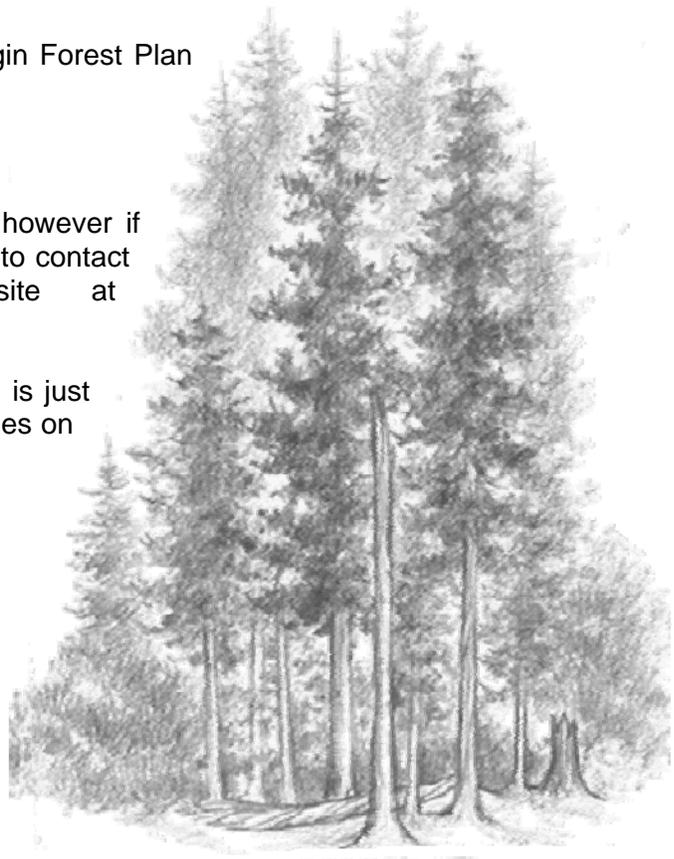
Until we begin Plan revision, it is my commitment to keep you informed of the results of monitoring through this report; however if you would like more information, feel free to contact the Forest or visit our website at www.fs.fed.us/r6/siuslaw.

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

Sincerely,

A handwritten signature in black ink that reads "Barnie T. Gyant". The signature is written in a cursive, slightly slanted style.

BARNIE T. GYANT
Forest Supervisor
Siuslaw National Forest



SIU-02-09

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

INTRODUCTION 4

AQUATIC GROUP 5

Monitoring Question: Anadromous Fish Habitat5

Monitoring Question: Lake Fish Habitat.....9

Monitoring Question: Fish Populations12

Monitoring Question: Water Quality15

TERRESTRIAL GROUP 35

Monitoring Question: Forest Vegetation Condition.....35

Monitoring Question: Plantation Management37

Monitoring Question: Suitable Timber Land.....37

Monitoring Question: Special Forest Products.....38

Monitoring Question: Soil Productivity40

Monitoring Question: Research Natural Area Protection.....41

Monitoring Question: Northern Spotted Owl.....45

Monitoring Question: Marbled Murrelet.....46

Monitoring Questions: Northern Bald Eagle.....47

Monitoring Questions: Western Snowy Plover.....48

Monitoring Questions: Oregon Silverspot Butterfly50

SOCIAL GROUP 52

Monitoring Question: Commodity Production.....52

Monitoring Question: Cultural Resources.....53

Monitoring Questions: Ownership status54

Monitoring Questions: Local Economies and Communities.....55

Monitoring Question: Public Coordination, Cooperation and Collaboration.....55

Monitoring Question: Recreation Diversity56

Monitoring Question: Recreation Off-highway Vehicles57

Monitoring Question: Accessibility58

Monitoring Question: Access and Travel Management.....58

OTHER GROUP..... 60

Monitoring Question: Programs and Budget.....60

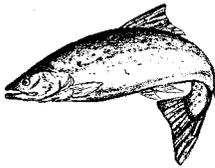
FOREST PLAN AMENDMENTS..... 63

Introduction

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.

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 resource. Below is a summary of FY08 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 2008 we surveyed 15 miles of stream habitat in Canal Creek of the Alsea River drainages on the Central Coast Ranger District. The survey data provides a record of current physical stream conditions and baseline information about the aquatic species present in the streams using physical survey protocol and divers snorkel surveys. This stream survey data will be especially useful to document current habitat before planned aquatic habitat restoration projects as well 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) which was developed to fulfill the monitoring component of the Northwest Forest Plan including the Aquatic Conservation Strategy. AREMP surveyors included the Eckman Creek subwatershed in the Alsea River drainage on the Central Coast Ranger District for survey in 2008. A 15-year assessment of watershed condition in 6th field watersheds with at least 25% federal ownership along the stream will be done in 2009. It is too early in the AREMP monitoring program to draw conclusions about changes to anadromous fish habitat on the Forest at this time.

Biological monitoring to assess the effectiveness of the Green River large wood placement project and Tenmile Creek large wood placement (Johnson et al. 2005) was highlighted in the 2006 Forest Plan Monitoring Report. A three fold increase in juvenile salmonids was reported over numbers of fish counted in the 2000 pre-project survey showing 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 first post project winter survival increased by 120 percent, the second by 104 percent, and the third by 102 percent and the fourth by 137 percent. 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. In 2006 and 2007 a combined total of 26.5 miles of stream channel was treated with whole tree large wood placement to achieve the habitat complexity results documented at the Green River project site. In 2009 the MidCoast Watersheds Council is proposing to expand the Green River monitoring effort with an Oregon Watershed Enhancement Board project to monitor coho juvenile salmon response to large wood placement when spawning coho salmon are expected to return in numbers that should approach full seeding. We hope to report those results in the near future.

Land acquisition has always played a large role in anadromous fish habitat restoration on the Siuslaw National Forest. We continue to monitor reestablished estuarine and freshwater habitats on the Drift Creek restoration project located in the estuary of the Alsea River watershed. A recent purchase of 193 acres at the mouth of Big Creek, Lane County adds 0.6 miles of anadromous fish habitat to public ownership. The property is presently held by The Nature Conservancy with plans to transfer the land to Oregon State Parks this fall. The Siuslaw National Forest will help with restoration planning and implementation in the near future. We are presently participating in the Conservation Action Planning (CAP) process with The Nature Conservancy, Oregon State Parks, Oregon Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service.

In 2008 the Siuslaw National Forest staff in cooperation with our partners Oregon Department of Fish and Wildlife, Siuslaw Watershed Council, MidCoast Watersheds Council, and Marys River Watershed Council placed large wood in a combined 19 miles of anadromous and resident fish habitat.

The restoration project monitoring report for the Whole Tree Large Wood Helicopter project completed in 2004 on the North Fork Siuslaw project sites document the observations of annual visits from 2004 through 2008. The large wood in the stream channels is contributing to increased fish habitat complexity for both spawning adults and rearing juvenile salmonids. The following photos document changes to fish habitat following large wood placement at two sites on Elma Creek of the North Fork Siuslaw River Restoration project.

References

Johnson, S.L., Rogers, J.D., Solazzi, M.F., and Nickelson, T.E. 2005 Effects of an increase in large wood on abundance and survival of juvenile salmonids (*Oncorhynchus* spp.) in an Oregon coastal stream. *Can. J. Fish. Aquat. Sci.* 62: 412-424.

North Fork Siuslaw Restoration Monitoring Report, 2008

Siuslaw National Forest, Monitoring and Evaluation Report, Fiscal Years 2006

F O R E S T P L A N M O N I T O R I N G Q U E S T I O N S

Elma Creek

Site 7, looking downstream – 2004 before helicopter wood placement



Site 7, looking downstream – 2004 after wood placement ->



<- Site 7, looking downstream – 2008

New Comments: This site has collected lots of spawning gravel and small and woody debris. Multiple redds were observed above the pictured area as well.

Elma Creek

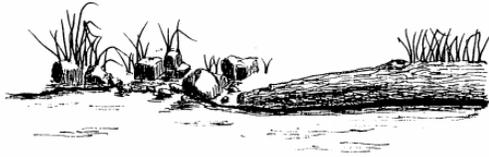
Site 10, looking downstream – 2004



Site 10, looking downstream – 2008



There were several redds above the pictured site as a result of gravel collecting upstream of the logs. It is interesting to see how the sedge bank-side vegetation on the left pictured above shifted to predominantly alder in the last 4 years.



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 animals 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.

The four invasive non-native nuisance species were not widely distributed. 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; 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. Our monitoring in 2006 and 2007 found Parrot's feather still present in Loon Lake but at a much reduced level. Additional monitoring in 2008 found the plant to be on the increase. Control of the invasive Parrot's feather and monitoring work will continue at Loon Lake in an effort to restore the aquatic plant community and refine invasive plant treatment techniques.

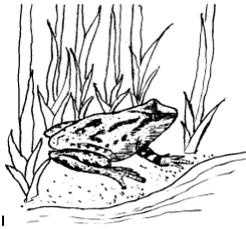
Eutrophication - The Forest has not been systematically monitoring eutrophication rates associated with increased inputs of nutrients, however, inferences can be made by studies on the Tenmile Lakes conducted by the Tenmile Lakes Basin Partnership, and by delta monitoring in Mercer Lake conducted by 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 associated with lakeside housing during the summer months when stream flow is lowest.

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 from previous freshwater marshes. 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 tree thinning projects. 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?

The National Marine Fisheries Service (NMFS) issued their final determination to list the Oregon Coast Evolutionarily Significant Unit of coho salmon (*Onchorhynchus kisutch*), as threatened under the Endangered Species Act on February 11, 2008. The protective regulations and designation of critical habitat was effective May 12, 2008. Oregon Coast coho salmon are found in all major Ocean tributaries of the Forest and are most common in small low gradient streams.

Coho salmon production for the Oregon Coast ESU has been in decline since the 1980's with very low wild coho returns in the 1990's (Figure 1). Returns since 2002 have shown improvement but it is much too early to draw conclusions about the status of this ESA listed fish. The Oregon Coast Coho Conservation Plan for the State of Oregon, March 16, 2007 identifies the desired status for the ESU as: *Populations of naturally produced coho salmon are sufficiently abundant, productive, and diverse (in terms of life histories and geographic distribution) such that the ESU as a whole is 1) self-sustaining into the foreseeable future, and 2) providing significant ecological, cultural, and economic benefits.* The goal for returning wild spawners targets an average return that ranges from a low of greater than 100 thousand spawners when marine survival is extremely low to a high of 800 thousand spawners when marine survival is high. Wild coho salmon returns for 2009 are estimated by the Pacific Fisheries Management Council to be 211,600 adults and Oregon Department of Fish and Wildlife forecasts an abundance of 165,300 pre-harvest adult coho for the Oregon Coast ESU with a medium marine survival index for 2008.

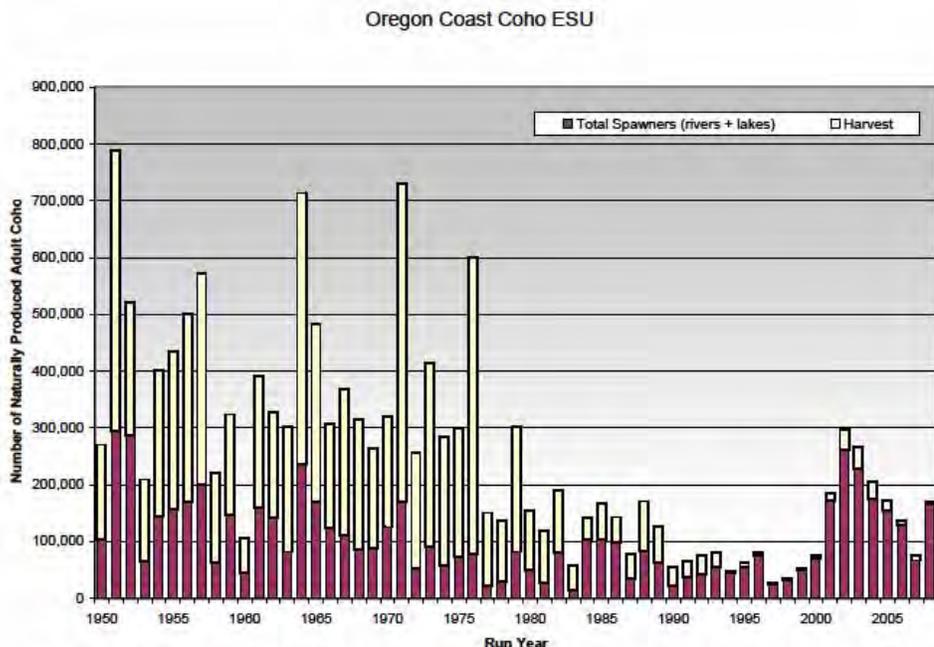


Figure 1. Estimated numbers of naturally produced adult coho in the Oregon Coast Coho ESU (run years 1950 to 2007). Number of adult coho spawning in the wild, and harvest impacts (both landed and non-landed). Numbers for 2007 are preliminary.

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 non-listed anadromous fish species found on the Forest is as follows:

Chinook salmon (*Onchorhynchus tshawytscha*) on the Oregon coast display two life history types; fall-run and spring-run adult spawning return times. 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 is 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 (*Onchorhynchus keta*) distribution. Chum return to the lower reaches of small to moderate Ocean tributaries of the Oregon Coast in the fall of the year. Chum salmon 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.

Steelhead trout (*Onchorhynchus mykiss*) on the Oregon coast display two life history types; fall-run and spring-run adult spawning return times. 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 (*Onchorhynchus clarki clarki*) 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 (*Lampetra tridentate*) 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.

North American green sturgeon (*Acipenser medirostris*) is an anadromous fish species that spends the majority of its adult life in the marine environment, occasionally entering fresh water, and can be found in near-shore marine waters, bays and estuaries on the Oregon Coast. The National Marine Fisheries Service listed North American green sturgeon south of the Eel River, Calif., (the southern distinct population segment, or DPS) as threatened under the Endangered Species Act. The population of green sturgeon north of and including the Eel River (northern DPS) did not warrant listing under the ESA.

Green sturgeon spawning is not known to occur on the Siuslaw National Forest. Spawning has only been documented for members of the southern DPS in the Sacramento River system. Green sturgeon spawning of unidentified DPS has also been confirmed in the Rogue River and Klamath River systems.

Subadult and adult green sturgeon from both populations seeking summer time habitat could be found in estuaries of the Siuslaw National Forest. The coastal bays and estuaries in Oregon that are designated critical habitat for the green sturgeon Southern DPS are Coos Bay, Winchester Bay, and Yaquina Bay. Southern DPS green sturgeon has been confirmed to occupy Coos Bay, Winchester Bay, and the lower Columbia River estuary in Oregon. The coastal bays and estuaries excluded from designated critical habitat for the green sturgeon Southern DPS in Oregon are Tillamook Bay and the estuaries to the head of tide in the Rogue, Siuslaw, and Alsea rivers. A determination of the North American green sturgeon status was not made by the Oregon Department of Fish and Wildlife 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.

Eulachon (*Thaleichthys pacificus*), commonly known as Pacific smelt or candlefish are a small anadromous fish that is known to spawn in small numbers in coastal rivers of the Siuslaw National Forest. Eulachon range from northern California to southwest Alaska into the Bearing Sea. They typically spend three to five years in the ocean before returning to freshwater to spawn in late winter through spring. NOAA Fisheries Service on March 9, 2009 proposed listing the southern distinct population segment (DPS) of Eulachon under the Endangered Species Act. The southern DPS ranges south from the Skeena River (inclusive) in British Columbia to northern California. Their distribution and population numbers are poorly documented on the Forest. Their probable ESA listing within the next year increases their importance for Forest level monitoring.



Monitoring Question: Water Quality

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

Water temperature

Fifty-one sites were monitored for stream temperatures across the Siuslaw National Forest during the months of May through September, 2008. Eleven sites have data for 10 years or longer, and are being monitored as long-term sites. Twelve sites have data for 5-9 years.

Comparing long-term Stream temperature monitoring sites

Monitoring question: Can long-term stream temperature monitoring sites be used as an indicator of climate change?

In the Coast Range, stream temperatures are not influenced by snow or glacial meltwater. Instead, air temperature seems to be a controlling factor. Over the years, and at several sites, paired air and water temperature monitoring data collectors have been installed. These sites show that water temperatures closely follow air temperatures, and have a similar diurnal fluctuation. Therefore, regardless of the amount of shade, summers with warmer air temperatures produce higher water temperatures. Since the air and water temperature are correlative in the Coast Range, it is possible that a long-term stream monitoring record could show a signature of climate change, and that climate change with the expected warming temperatures will have an effect on stream temperatures in the future. Figures 1 through 3 show graphs that compare air and water temperatures for 2 sites.

Site 180 Comparison of air and water temperatures 2007

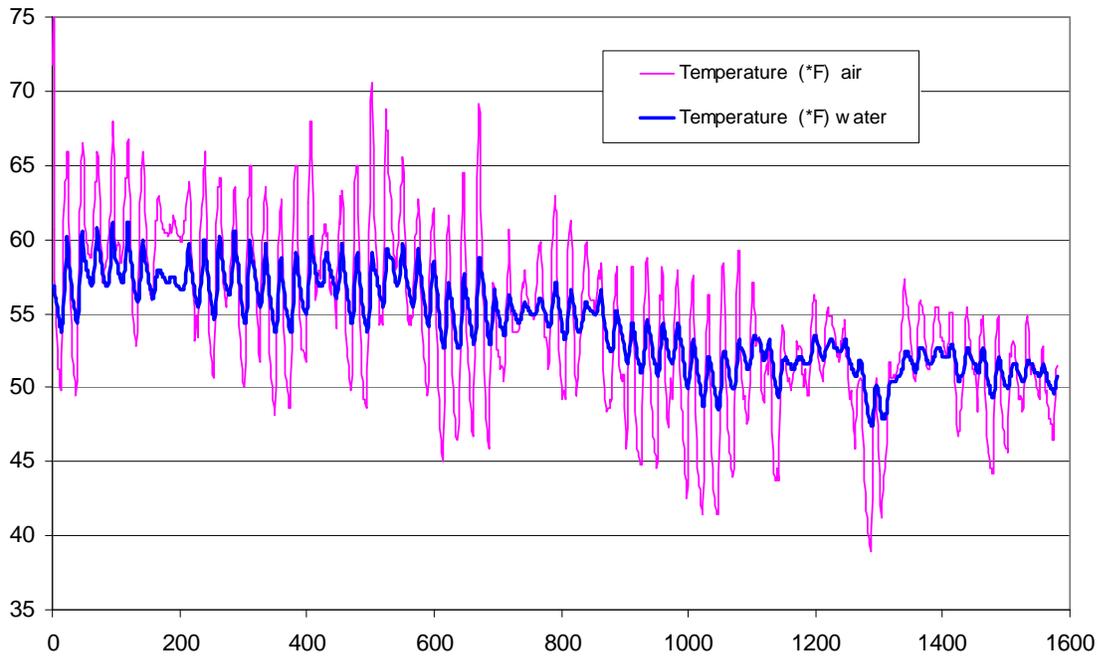


Figure 1: Comparison of air and water temperatures from August 12 through October 17, 2007 for Cape Creek. Cape Creek enters the Pacific Ocean near Heceta Head. The site is 2.4 km from the coast.

Site 180 Air and Water Comparison for August 2008

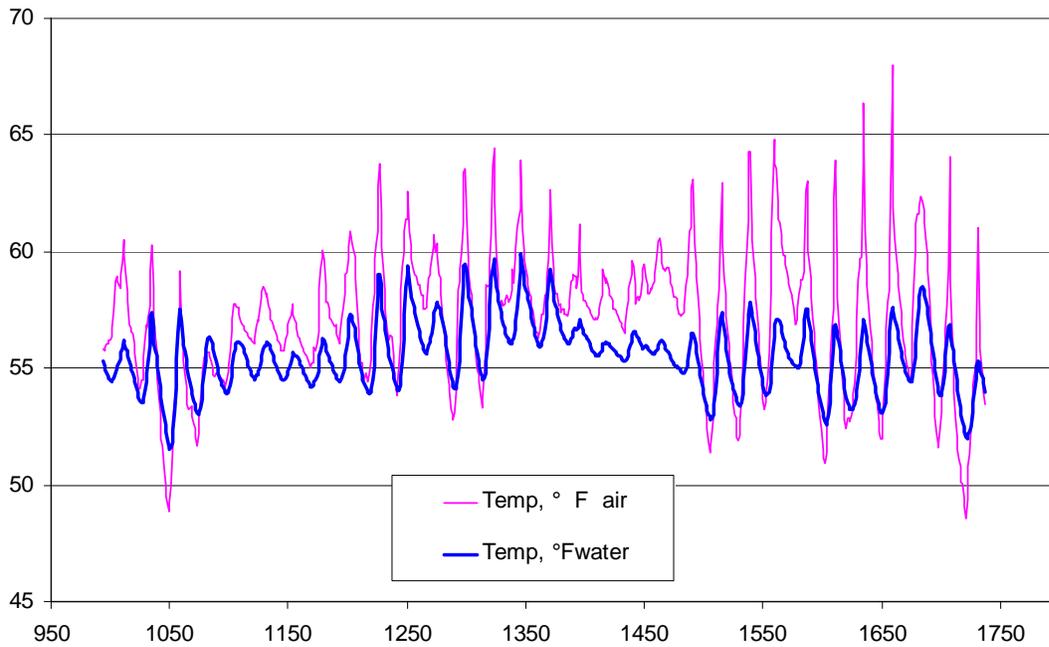


Figure 2: Cape Creek site with air and water temperature comparison for the month of August, 2008. Note the strong correlation between the air and water temperature peaks and valleys.

Site 194 August 2008 Air and Water comparison

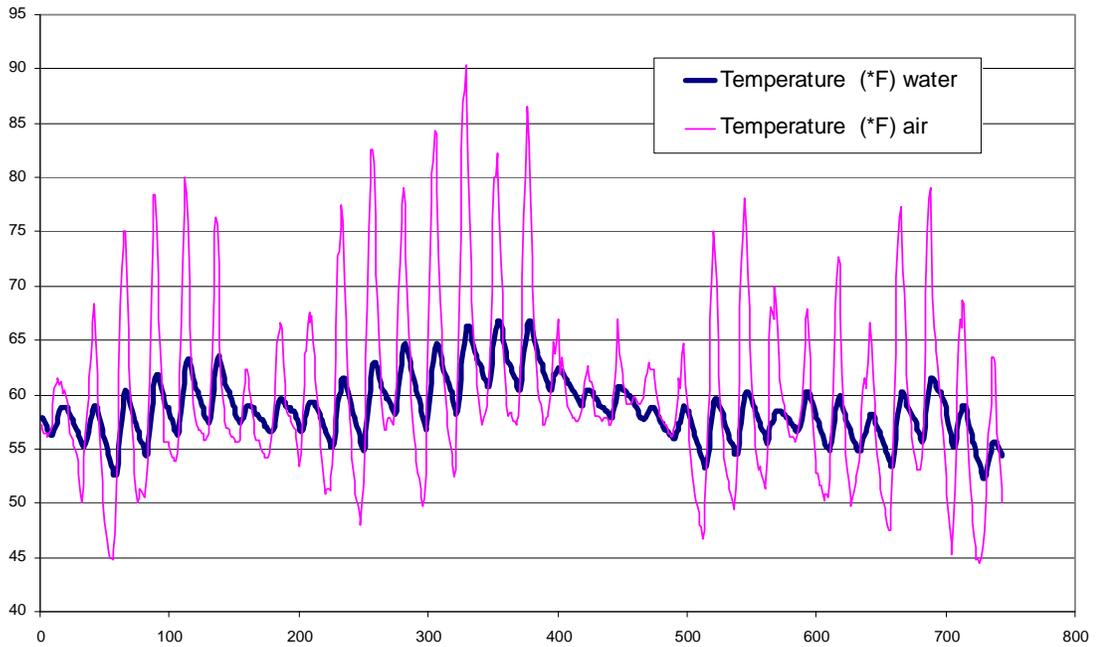


Figure 3: Drift Creek of the Alsea upstream of Gopher Creek for August, 2008. The site is 19.2 km from the coast. Long-term stream temperature monitoring sites in the Coast Range show similar trends over a number of years. Eight sites have almost continuous data from 2000 through 2008.

A description of the individual sites is as follows in Table 1. Table 2 shows the 7-day average maximum temperatures for the long-term monitoring sites.

FOREST PLAN MONITORING QUESTIONS

Creek name	Site number	Watershed Area above monitoring site (square miles)	geology	Distance from Coast (miles)	Latitude	management	Within Fog Zone?
Wapitii	179	4.4	Tpb--basalt	1.5	44 7 43	Late Successional Reserve	yes
Cape Creek	180	6.8	Tpb--basalt	1.5	44 7 48	Late Successional Reserve	yes
Sampson	5	9.9	Siletz River Volcanics (basalt)	8.7	44 54 38	Lower watershed: Late Successional Reserve, Upper: private timberland	no
Upper Drift	4	11.2	Siletz River Volcanics (basalt)	8.7	44 54 42	Lower watershed: Late Successional Reserve, Upper: private timberland	no
North Cape	194	14.6	Tyee Fm	11.8	44 30 57	Late Successional Reserve, aprox. 25% of watershed is private timberland	no
Traxel	79	5.4	Tyee Fm	12.1	44 31 22	Late Successional Reserve and private timberland.	no
Powder	500	2.6	Yamhill Fm (fine-grained sedimentary)	14	45 14 35	roadless area	no

Table 1: Characteristics of the long-term stream temperature monitoring sites.

FOREST PLAN MONITORING QUESTIONS

STREAM	STATION	2000_7-day ave max temperature	2001_7-day ave max temperature	2002_7-day average max temperature	2003_7-day ave max temperature	2004_7-day ave max temperature	2005_7-day ave max temperature	2006_7-day ave max temperature	2007_7-day ave max temperature	2008_7-day ave max temperature
Wapiti (fog zone)	179	60.10	59.00	58.50	60.70	61.70	59.20	59.90	59.10	57.70
Cape (fog zone)	180	60.90	60.00	60.20	62.50	62.80	60.50	61.40	61.00	59.20
Sampson Upper Drift (Siletz)	5	62.00	60.00	61.10	62.90		60.80	63.60		60.00
	4	64.40	62.60	62.90	65.30		60.90	66.10		62.80
Drift	194	66.00	64.80	65.60	67.30		64.30	70.20	65.90	65.10
North Cape Cr	2023	57.30	56.60	57.80	58.00	58.90	57.90	58.50	57.40	56.90
Traxel Cr	79	58.90	57.80	57.60		59.80	57.50	60.20	57.40	57.30
Powder Cr	500	62.80	61.50	64.10	66.50	64.10	62.10	68.50		62.50

Table 2: Long-term stream temperature monitoring sites, with the 7-day average maximum temperature for each year between June and October. The numbers highlighted in yellow are the warmest recorded 7-day average maximum temperature for the stream, the numbers highlighted in blue are the coolest 7-day average maximum temperature for that site in the 8 years of record. Note that for half the sites, 2001 was the coolest year, and for the majority of the sites, 2006 was the warmest. Wapitii and Cape Creeks are within the fog zone, and are 1.5 miles from the coast. The fog zone may be the explanation for the reason that the warmest and coolest years for these sites are different from the other sites, which are not in the fog zone.

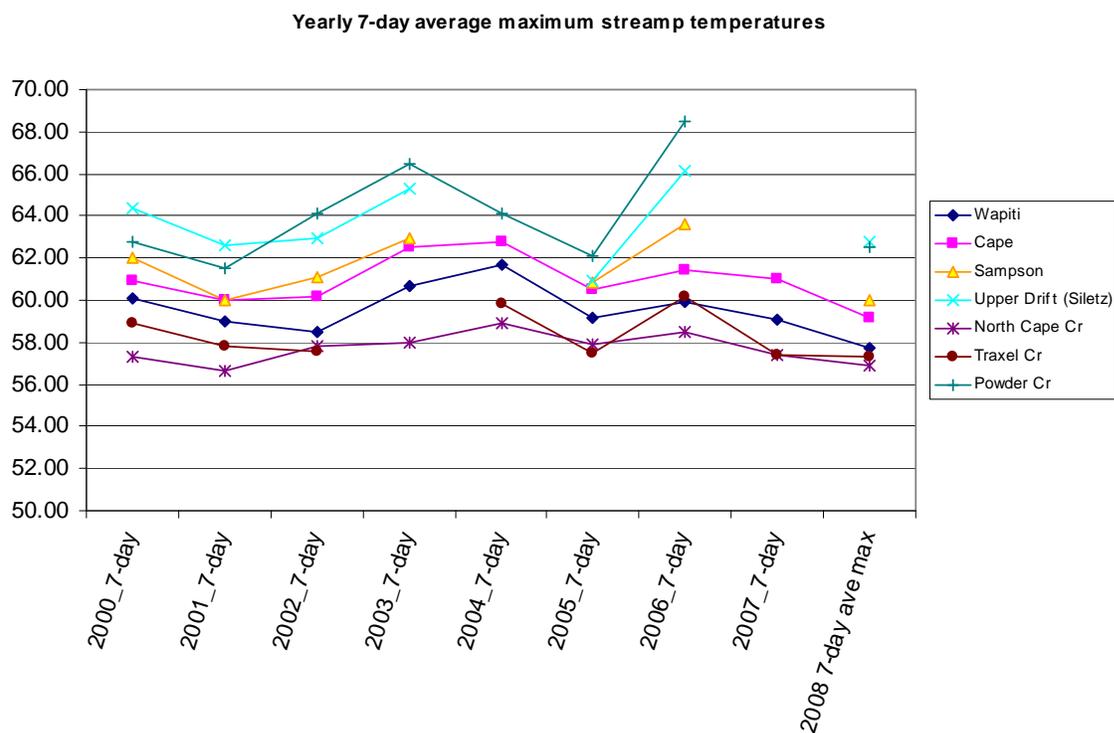


Figure 4: Graph of all the streams with almost continuous data between 2000 and 2008. Note that all of them show similar trends from year to year.

Conclusion

The long-term monitoring sites vary in distance from the coast, watershed area, geology, and management. In spite of these differences, there seems to be an overall regional trend in warm vs. cool summers. The only sites that don't fit the overall trend are the two sites that are within the fog zone near the coast. More years of monitoring will help determine whether stream temperature can be used as a bellwether for climate change.

Watershed Monitoring for Stream Temperature

This section of the report focuses on stream temperature monitoring in two different watersheds. The monitoring done in the Green River was conducted to understand variance in stream temperatures through the watershed. The stream temperature monitoring in the Karnowsky Creek watershed was done to monitor what changes might occur before and after a major restoration project was completed.

Green River Green River is a tributary to Five Rivers, a major tributary to the Alsea River. Sites 109 and 1212 bracket a former beaver pond that has filled in and become a “flat” in the stream gradient profile. Site 1212 is upstream of the flat; site 109 is downstream. Over the years, alder have colonized the site and shaded the stream channel. Site 1212 has retained a relatively constant temperature around 61F. In 2001, site 109 was 6.6F warmer than site 1212, but beginning in 2005, the temperature began to drop, and by 2008, it was almost the same as Site 1212, suggesting that the growth of the

alder had reduced solar heating in this segment of stream. See Figure 5 for a map of the Green River watershed and temperature sites.

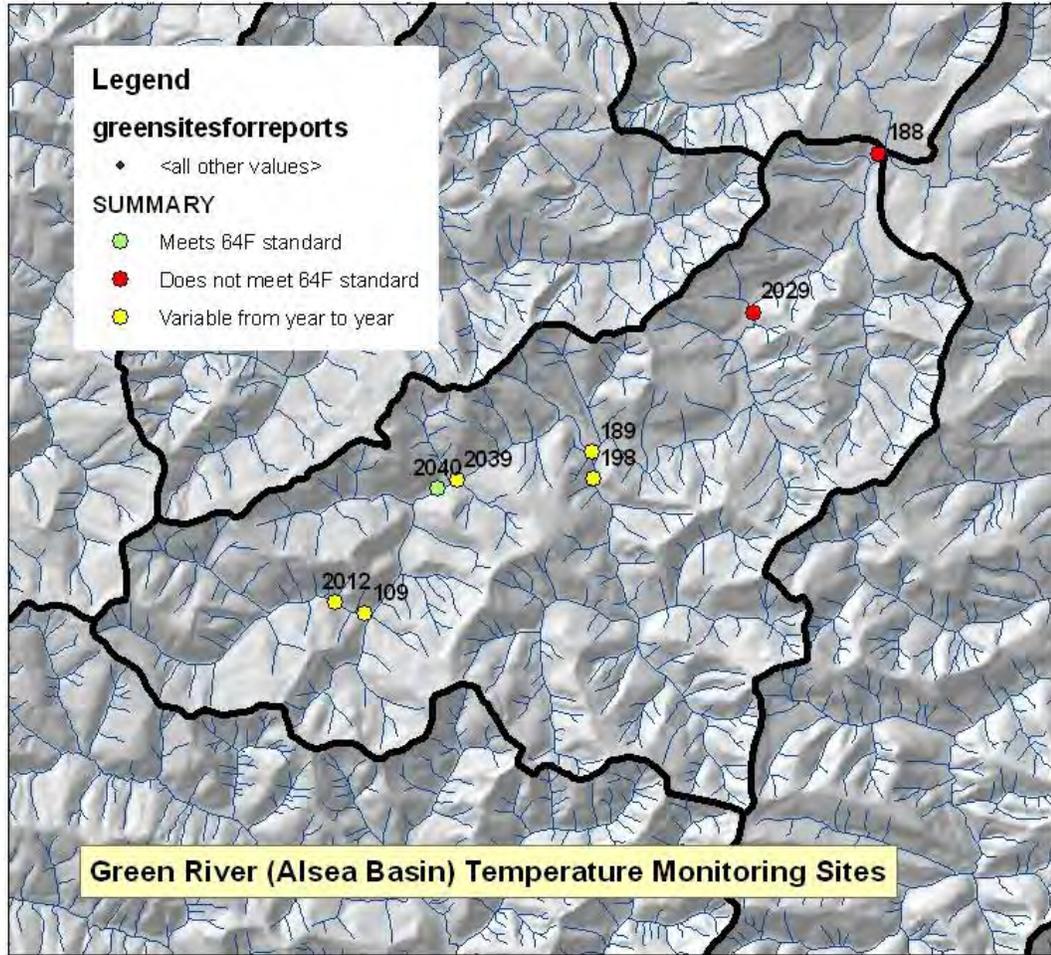


Figure 5: Map of the Green River stream temperature sites.

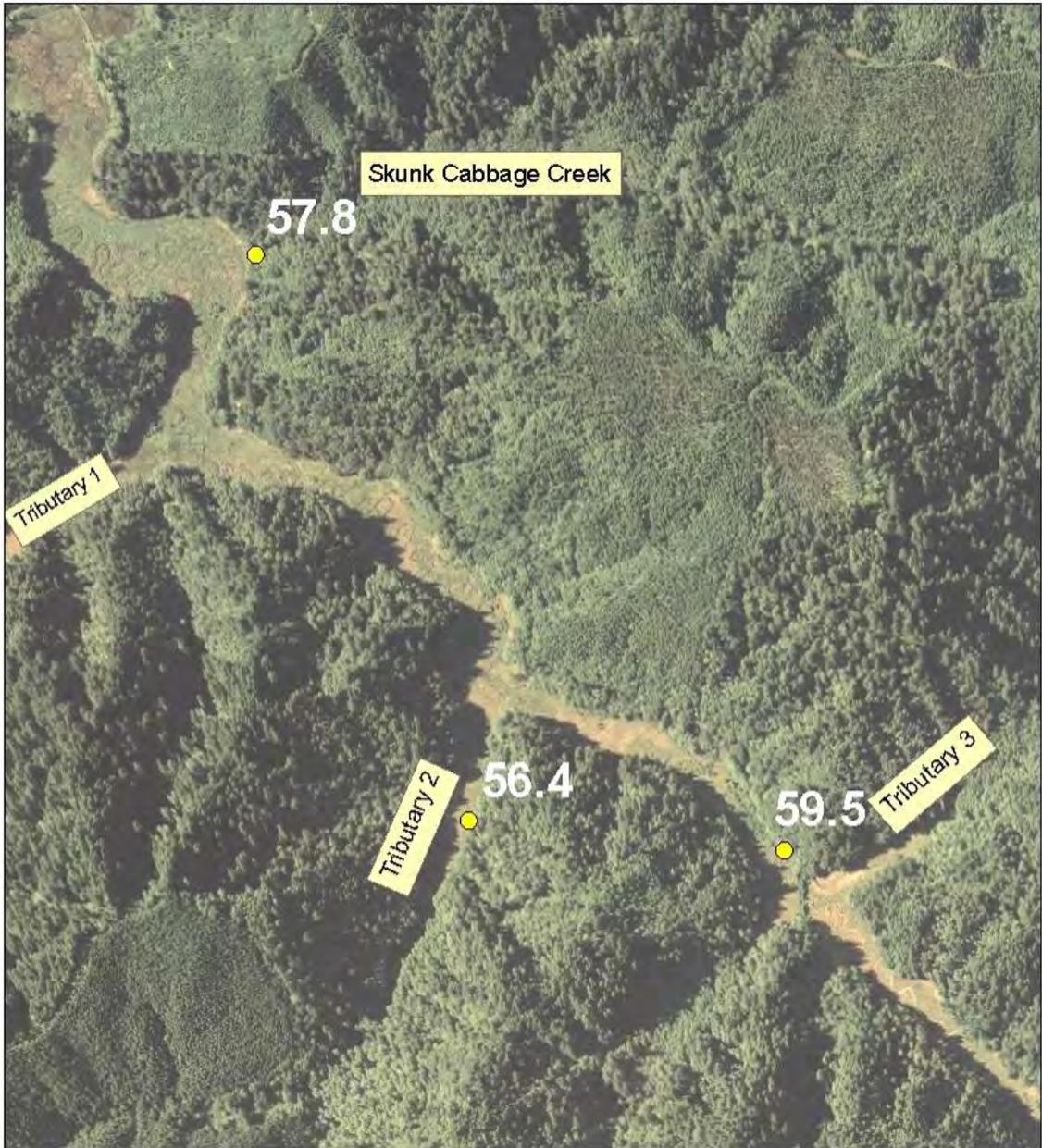
STREAM	STATION	2000_7-day average maximum temp (F)	2001_7-day average maximum temp (F)	2002_7-day average maximum temp (F)	2003_7-day average maximum temp (F)	2004_7-day average maximum temp (F)	2005_7-day average maximum temp (F)	2006_7-day average maximum temp (F)	2007_7-day average maximum temp (F)	2008_7-day average maximum temp (F)	objective	comments
Green River	109		67.70	67.30	67.40		61.10	63.70	60.60	59.50	brackets "flat" with 2012	
Green River	188	70.80		71.30	71.40	71.90	66.90		68.30			
Green	189	64.50		64.40	66.30	67.70	63.00	67.10	63.80	64.20		
EF Green	198	65.70		67.40	66.50	65.90	62.10	66.80	63.00	63.40		
Green	2012	62.80	61.10	61.60	61.90	61.90		61.60	58.80	59.30	brackets "flat" with 109	
Green River	2029	68.70	68.40	68.30	68.60	69.40	65.30	70.50	66.20	66.30		
Green River	2039	64.60	66.40	64.50	64.00	64.10	62.40	65.60	61.60	61.40	brackets "flat" with 2040	wood placed between 2039 and 2040
Green River	2040	62.20	61.00	61.70	62.40	63.00	61.40	65.20	61.80	62.20	brackets "flat" with 2039	

Table 3: Green River stream temperature data showing the yearly 7-day average maximum temperature. Wood was placed between sites 2039 and 2040 in 2002.

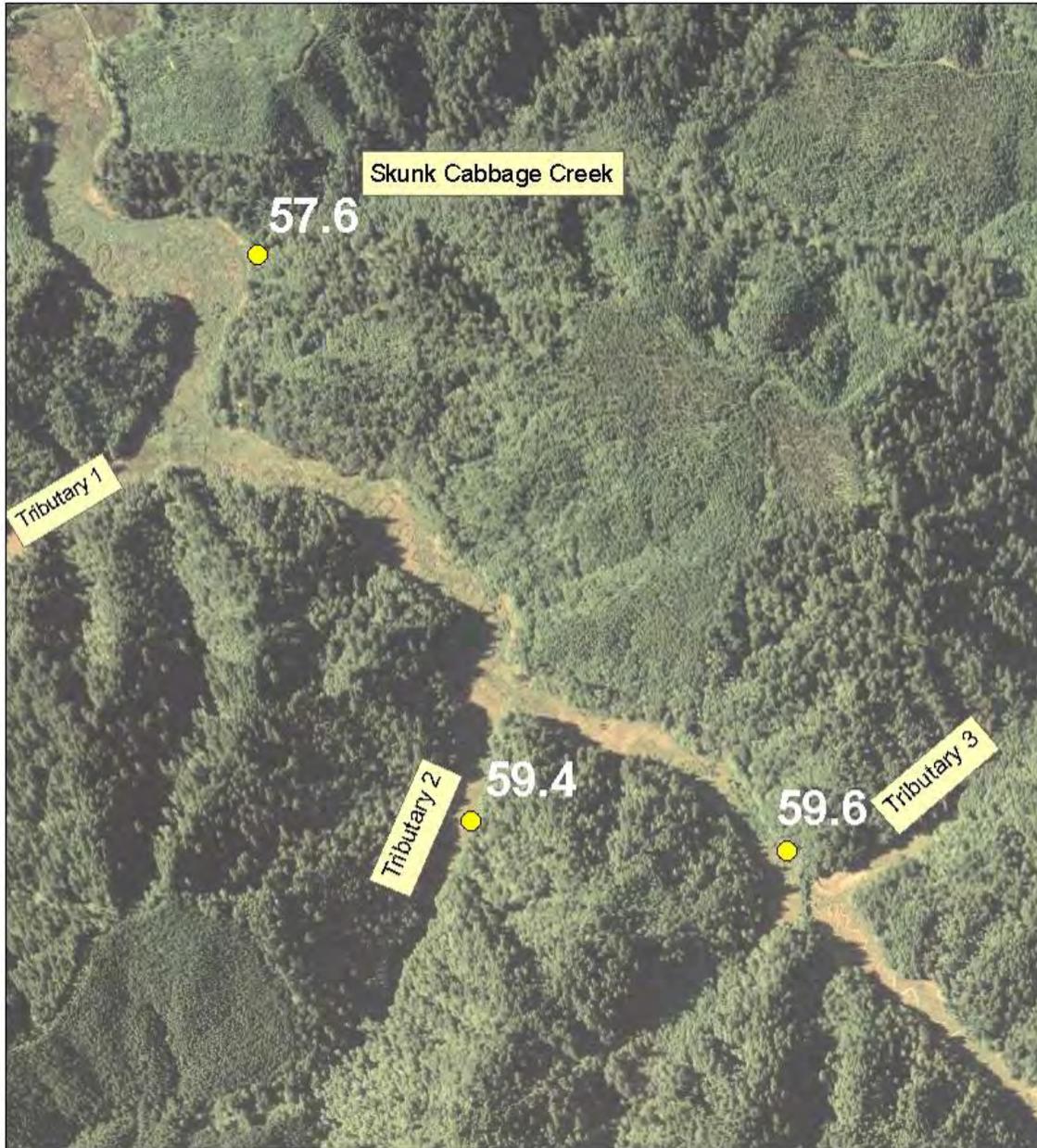
Karnowsky Creek Stream Temperature Changes with Restoration Work

In the year prior to project implementation, 2002, water temperatures in the well-shaded ditches were in the high 50's F. Immediately after the new channel was dug in late 2002, and before the riparian vegetation had become established, water temperatures ranged from 59.2F to 73F in 2003, depending on location. As the vegetation grew and provided more shade, temperatures have dropped in subsequent years. In 2008, the highest 7-day average maximum temperature recorded was 63.7F just below Tributary 1. Some of the water temperature decrease may be due to raising the groundwater table, since the meandering channel better at retaining and recharging the groundwater. The ditches were very efficient at draining the valley floor. See the section on the Karnowsky Creek groundwater monitoring.

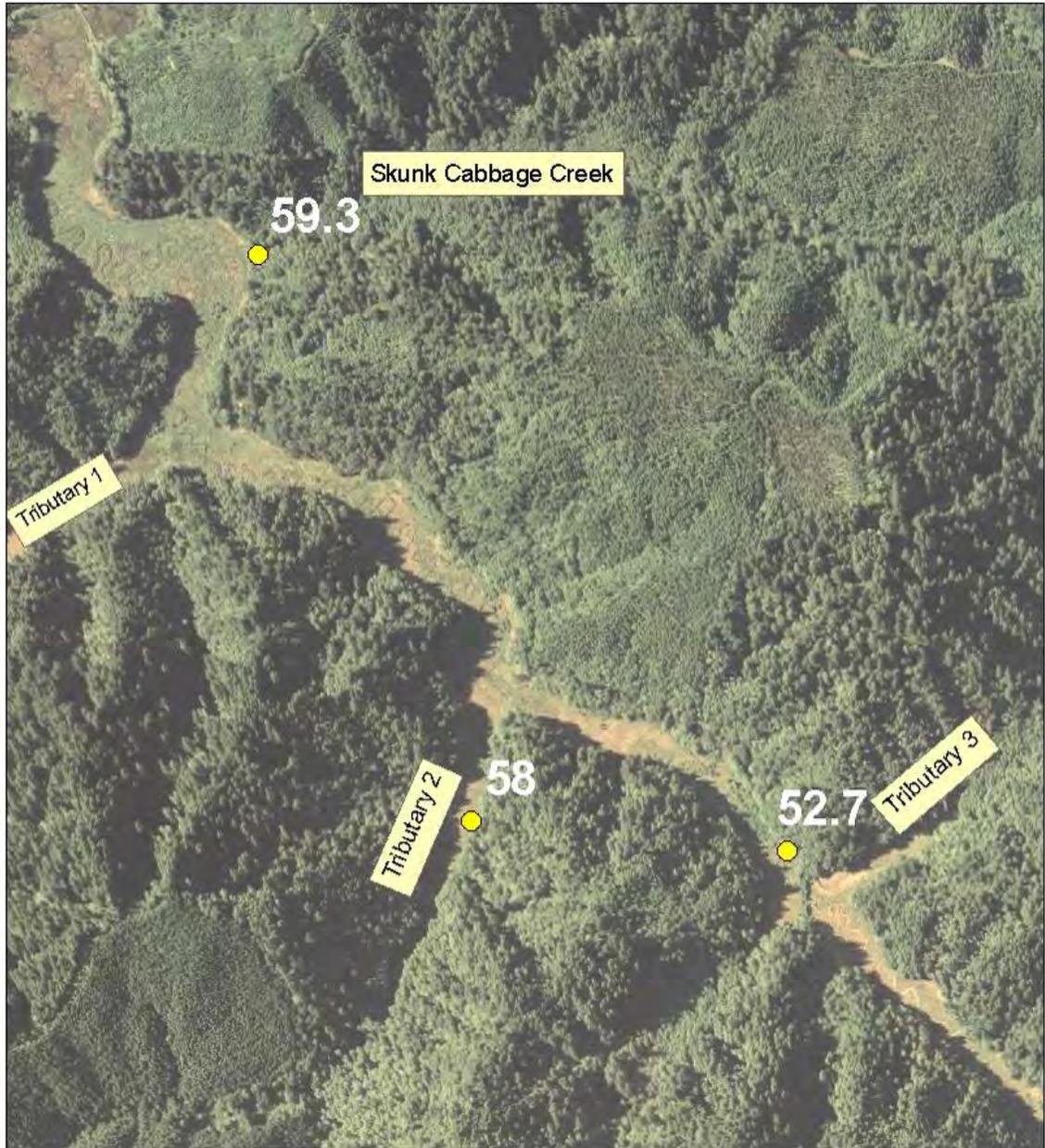
The following maps show the yearly temperature monitoring locations and the 7-day average maximum temperatures from 2002 through 2008.



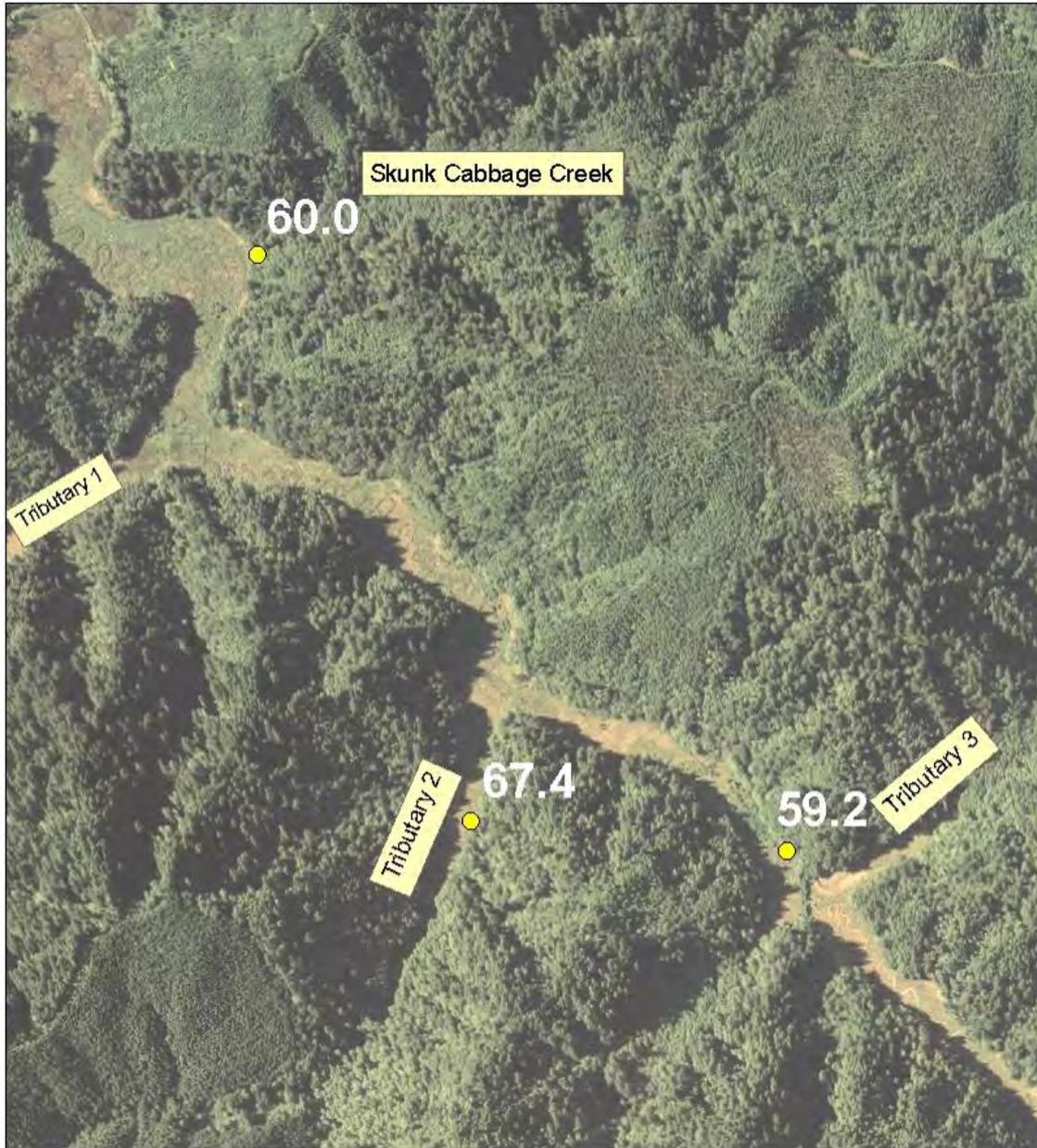
2002 Kamowksy Creek Stream temperature monitoring sites with 7-day average maximum temperatures.



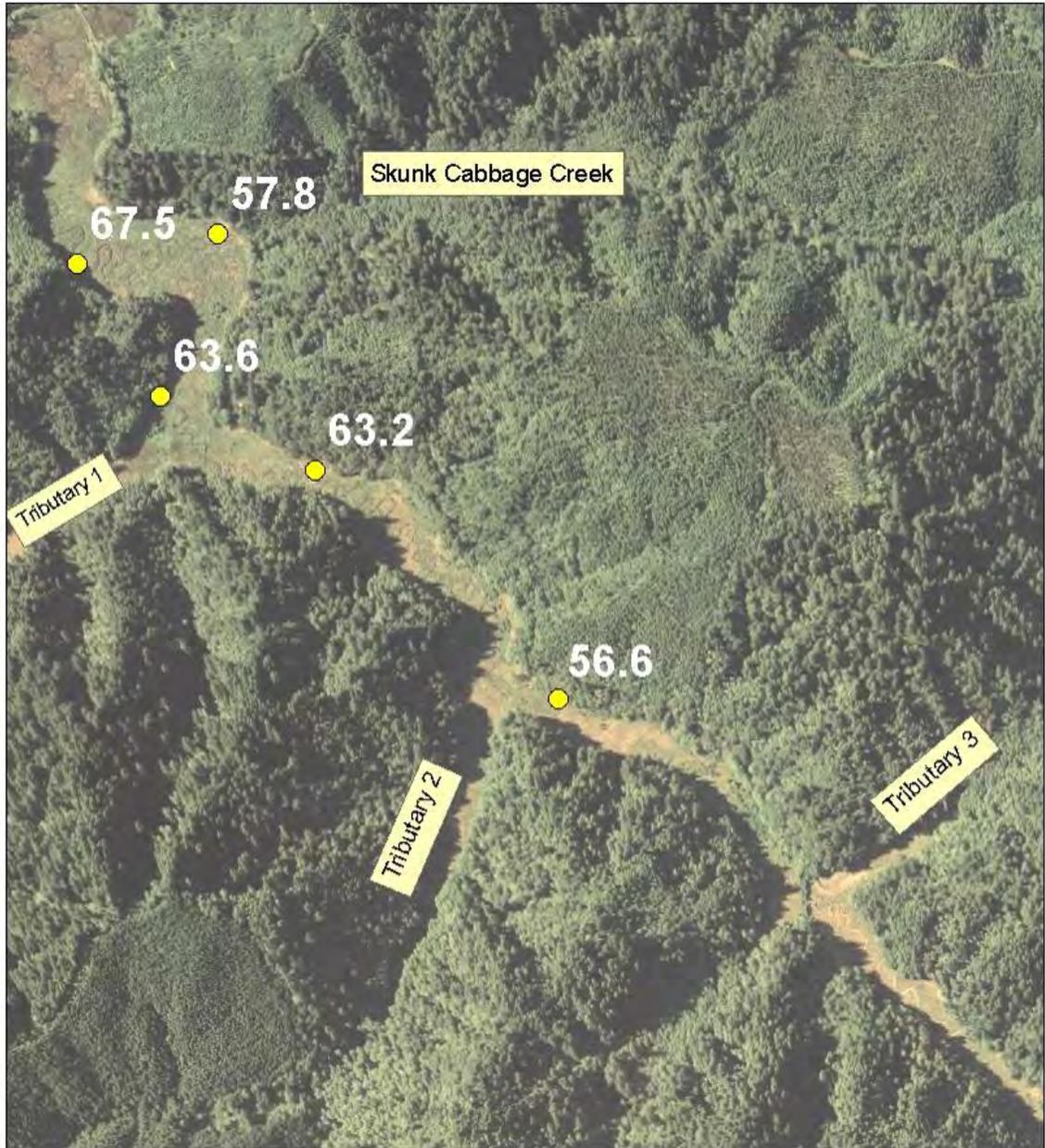
2003 Kamowksy Creek Stream temperature monitoring sites with 7-day average maximum temperatures.



2004 Kamowksy Creek Stream temperature monitoring sites with 7-day average maximum temperatures.



2005 Kamowksy Creek Stream temperature monitoring sites with 7-day average maximum temperatures.



2007 Kamowksy Creek Stream temperature monitoring sites with 7-day average maximum temperatures.



2008 Kamowksy Creek Stream temperature monitoring sites with 7-day average maximum temperatures.

Groundwater Monitoring at Karnowsky Creek, 2002-2007

Introduction

Groundwater monitoring was done to test the following hypothesis: restoring a more natural, meandering channel that was connected with the floodplain, and filling in the incised ditches that were efficient at removing water from the valley, would raise the water table, and sustain higher groundwater levels later into the dry season.

Methods:

Several well transects were established that crossed the mainstem valley and tributary valleys. See Figures 1 and 2 for the location of the groundwater monitoring wells. At the beginning of every month between 2002 and 2007, the depth of the groundwater table was measured and recorded. The new mainstem channel was dug in 2002, and streamflow was introduced into the new channel in 2003. Therefore, there was one year of pre-project groundwater data.

In this document, the data gathered for the months of May, June and July for each year is compared. These months were chosen for analysis because the transition from the rainy to the dry season occurs during this time of year. If water tables are sustained later into the dry season, these are months that would show that result.

Cumulative rainfall from October of the preceding year through the month analyzed is shown in Figure 3. Data is from the Goodwin Peak RAWS (Remote Automated Weather Station), which is approximately 6 miles southeast of Karnowsky Creek.

The new channel was dug during the late summer of 2002; however, the water wasn't diverted from the ditches into the new channel until late summer 2003. Therefore, the first two years of data shown in this report, 2002 and 2003, for the wells is prior to the ditch filling and introducing water into the new channel.

An example of the results from one transect of groundwater monitoring wells, Transect 664, is shown following the RAWS rainfall data.

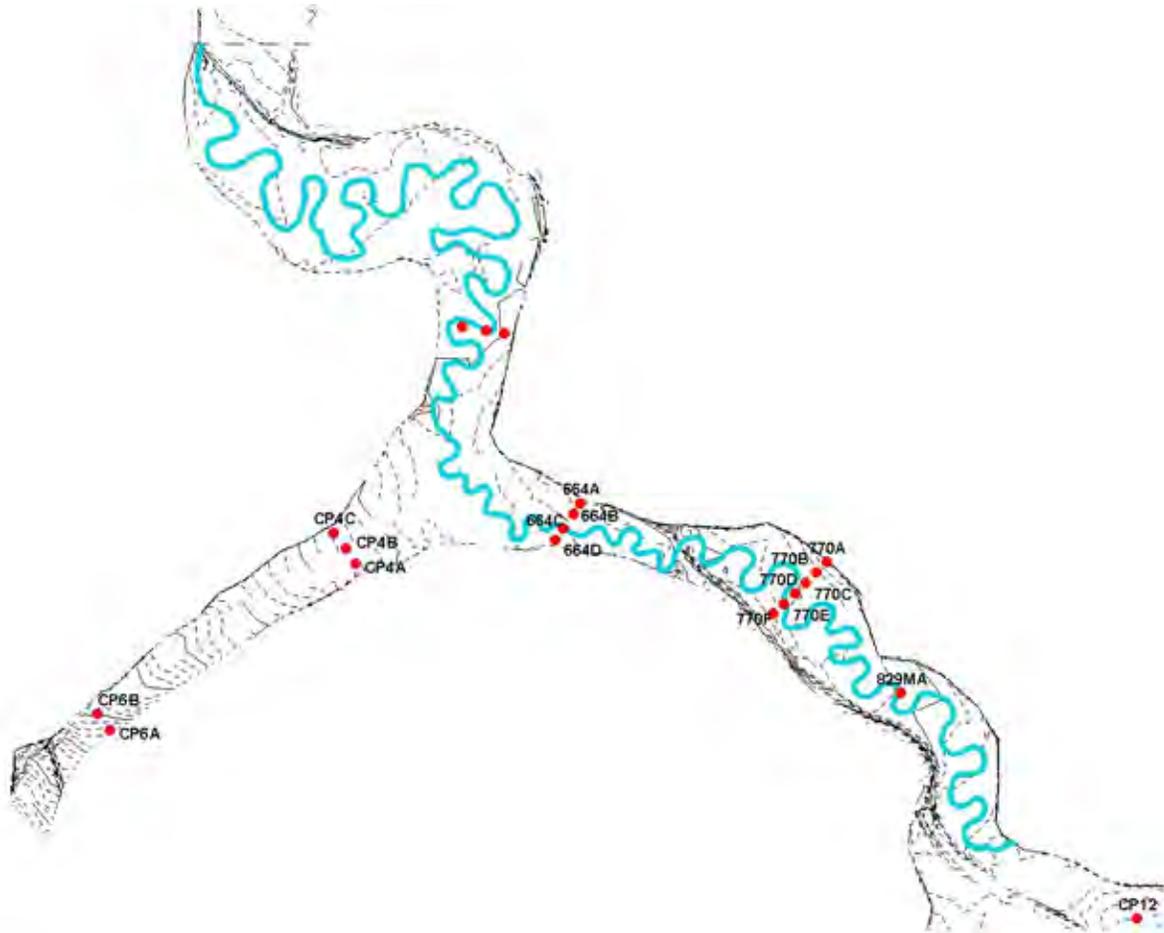


Figure 1: Map of well locations in the lower Kamowsky Creek Valley.

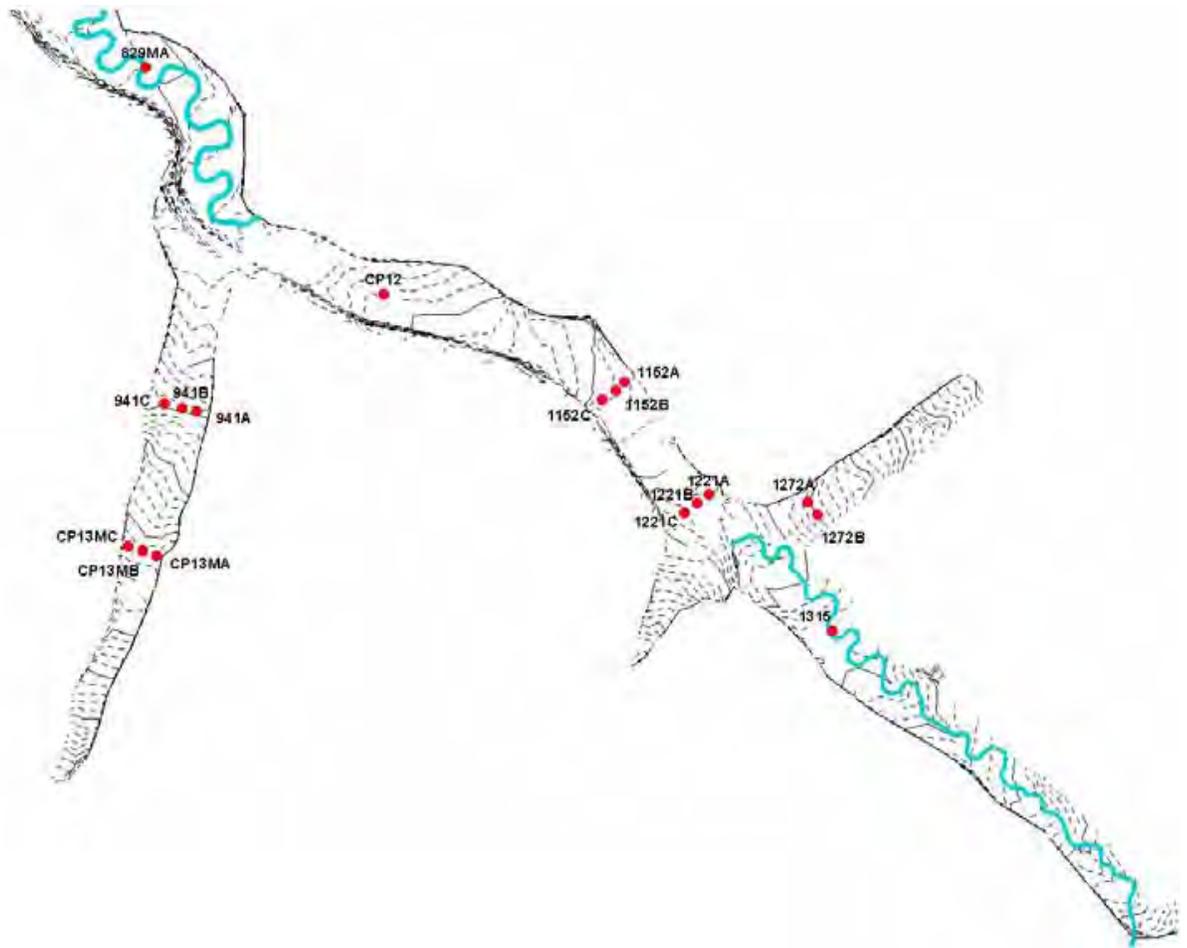


Figure 2: Map of the well locations in the upper Karnowsky Creek valley.

Goodwin Peak RAWS Station Precipitation Data

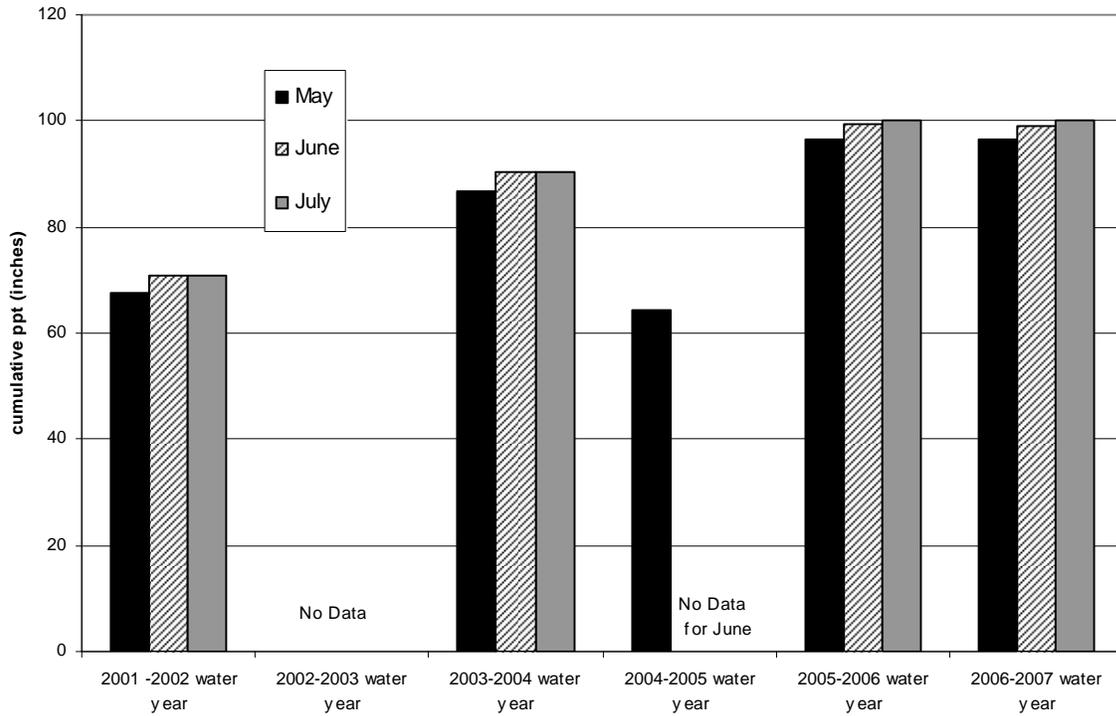
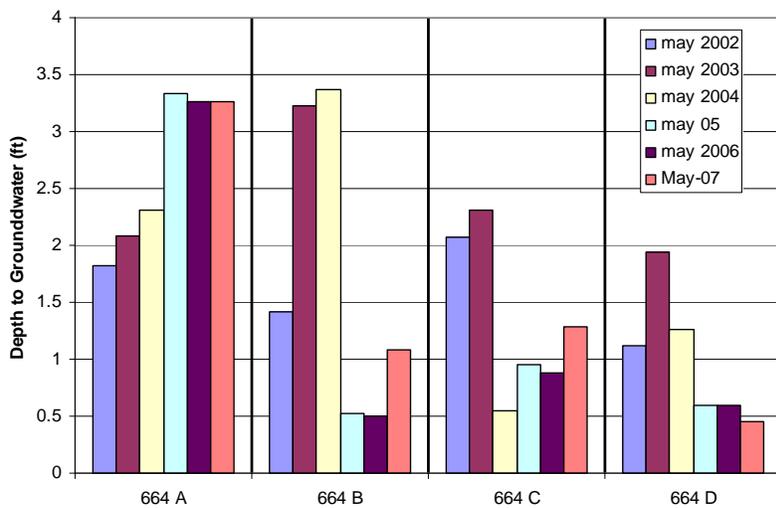


Figure 3. Cumulative precipitation data from the Goodwin Peak Remote Automated Weather Station (RAWS). Data is cumulative from October of the preceding year through May, June or July of the following year. Water years in western Oregon run from October 1 through September 30. No data was included for the 2002-2003 water year because two months of data were missing. Likewise, only the May data for the 2004-2005 water year is shown because the June 2005 data is missing. Note that the later years in the data set are wetter than the earlier years.

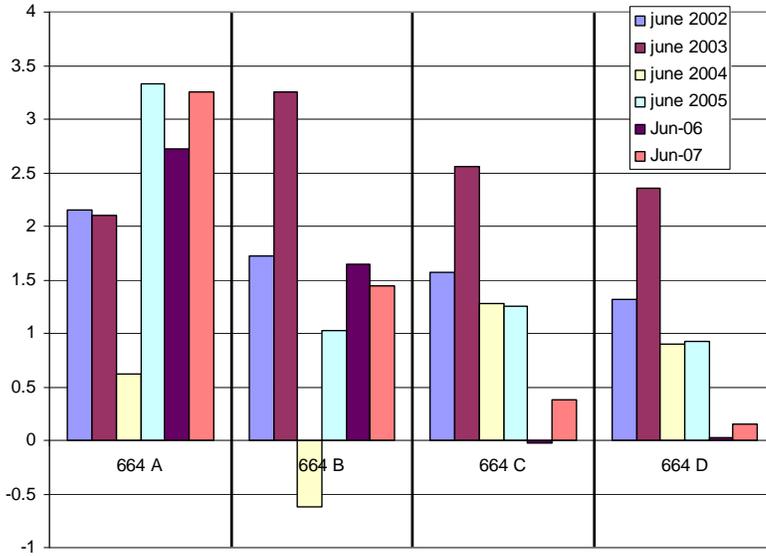
Groundwater Well Series 664, Mainstem valley above Tributary 1

Groundwater Well Series 664, Mainstem above Tributary 1

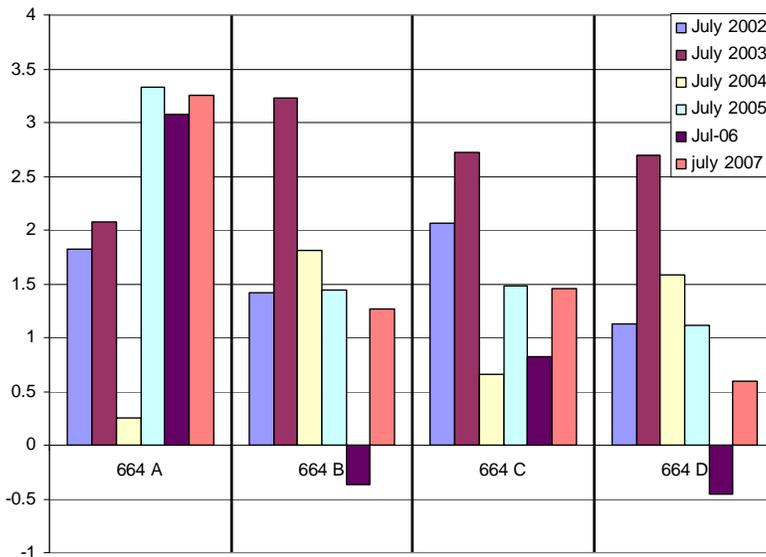


Comparing depth to groundwater for the month of May, 2002-2007.

FOREST PLAN MONITORING QUESTIONS



Comparing depth to groundwater for the month of June, 2002-2007.



Comparing depth to groundwater for the month of July, 2002-2007.

DISCUSSION:

Well 664A is on the northeast side of the valley, where the ground elevation is higher, and where the old drainage ditch was. Well 664C is near the new channel, and well 664D is near on the south side of the valley.

The ditch was filled and the water was diverted into the new channel during the summer of 2003. After that, the groundwater level near well 664-A, which was near the old ditch, dropped for the following years. For the other wells, the groundwater shows a general trend of getting shallower, indicating that the water table has come up.

CONCLUSIONS:

Groundwater levels appear to have risen in the lower and middle portions of the mainstem. There is less noticeable change in the tributaries and the upper portion of the mainstem above Tributary 3.

According the rainfall data from Goodwin Peak, the winters of 2005-2006 and 2006-2007 were wetter than the previous 4 years. The wetter years may account for some of the rise in groundwater levels. However, the water levels in Tributary 2, where no restoration work was done, don't show a response to the wetter years. This fact implies that the restoration has had a positive effect on raising groundwater levels in the lower and middle mainstem valley.

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 FY08 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.

Activity	Unit of Measure	Accomplished
Thinning for Hazardous Fuels Reduction	Acres	1894
Invasive Species Treatment	Acres	242
Commercial Thinning	Acres	1508
Tree Planting	Acres	7
Reforestation Enhancement	Acres	493
Reforestation Enhancement Maintenance	Acres	23
Animal Damage Control for Reforestation	Acres	123
Individual tree release and weeding	Acres	231
Area release and weeding	Acres	109
Precommercial thinning	Acres	952
Pruning	Acres	31

FOREST PLAN MONITORING QUESTIONS

Activity	Unit of Measure	Accomplished
Wildlife Habitat Improvement	Acres	497
Wildlife Habitat: Grasses and forbs	Acres	302
Anadromous Fish: Thinning for Fish Habitat Improvement	Acres	313
Watershed Resource: Road Closure	Miles	10.4
Wildlife Habitat: Large woody debris placement	Each	6774
Wildlife Habitat: Nest structures. dens development	Each	348
Wildlife Habitat: Snags created	Each	3086
Road Decommisioning	Miles	5.4



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 the any negative effects from harvest to the long-term sustainability of Matsutake mushroom resources?



Product	Quantity Sold	Number of Permits	Value
Alder puddle sticks	2,000 pieces	2	\$40.00
Beach Grass & Carex Transplants	5,000 plants	2	\$100.00
Boughs	20 tons	9	\$400.00
Cascara Bark	6,000 lbs.	11	\$300.00
Christmas Trees	444 tags	13	\$2,200.00
Commercial “Other” Mushroom	12,981 lbs.	326	\$12,981.00
Commercial Greenery (CCRD)	1014 tons	239	\$71,700.00
Commercial Greenery (Hebo)	69 tons	24	\$6,930.00
Commercial Matsutake Mushroom (CCRD)	30,900 lbs	103	\$30,900.00
Commercial Transplants	3526 each	26	\$4,236.00
Misc. Cuttings	6800 lbs	17	\$340.00
Misc. Grass and/or Plant Seed	none	none	\$0.00
Misc. Root Species	none	none	\$0.00
Moss	none	none	\$0.00
Commercial Firewood (CCRD)	426 cords	93	\$4,260.00
Commercial Firewood (Hebo)	107 cords	19	\$1,070.00
Personal Use Firewood (CCRD)	984 cords	429	\$9,840.00
Personal Use Firewood (Hebo)	765 cords	238	\$7,650.00
Poles, Posts & Split Rails	none	none	\$0.00
Vine Maple limbs	13 tons	5	\$130.00

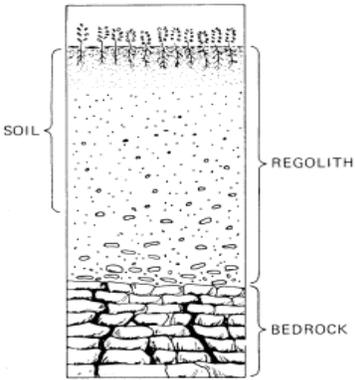
FOREST PLAN MONITORING QUESTIONS

Product	Quantity Sold	Number of Permits	Value
Grand Total		1556	\$153,077.00

* Note: Total Value for Botanical Products sold is \$127,587.00

Free Use Permits Issued

Product	Quantity Issued	Number of Permits	Estimated Value
Misc. Non-Convertible Forest Products	varied by product	46	\$704.00
Firewood (limbs, chunks, and bark)	CCF	8	\$109.00
Total		54	\$813.00

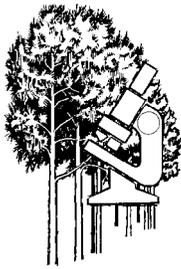


Monitoring Question: Soil Productivity

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 15 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 15 percent within harvest areas.



Monitoring Question: Research Natural Area Protection

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

Marys Peak meadow restoration project

Monitoring meadow response to treatment-3rd year

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.

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 and 7/24/2008. 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:

Between 2007 and 2008, areas with duff continued to revegetate. Non-native sheep sorrel (*Rumex acetosella*) is invading into previously bare sites. The native California sedge (*Carex californica*) is the most important graminoid to spread into the burned/seeded and unburned/seeded sites where the young noble fir were removed. Other natives that have established in the treatment plots include anemone, tiger lily (*Lilium columbianum*), and field woodrush (*Luzula campestris*), yarrow (*Achillea millefolium*), starry false solomon's seal (*Smilacina stellata*), as well as the treatment target, noble fir (*Abies procera*).

The plot with the most severe fire damage (1a) is recovering the slowest.

Treatment plot	Bare ground 2006	Sum plant cover 2007	Sum plant cover 2008*
1a-burn/seed	90	2	3
2a-burn/seed	55	62	48
3-burn/seed	75	27	47

*2008 had a late spring so some species' development was delayed compared to 2007.

The fescue seeded into the plots seems to be healthy and maintaining or increasing cover.

We found that the noble fir were seeding into the treatment area. This is particularly true of the zone directly adjacent to the forest edge. Sweeping across the meadow margin to pull seedlings may be the most effective means of stabilizing the forest/meadow boundary.

2007 slash along the southwest edge of the Trek meadow has been piled and should be burned summer/fall of 2008. If fescue seed were collected later this summer, it could be

seeded into the burn piles and along the boundary. Raking the margin with significant noble fir litter appears to improve fescue establishment.

Forest Botanist Marty Stein will include seed collection of representative native forbs and grasses from the meadow edges in an FY08 contract. Volunteers for raking and seeding along meadow edges and burn piles could be scheduled for October or November 2008. Cindy McCain and Forest Planner Frank Davis will pursue this with groups such as the Sierra Club, already active on Marys Peak.



Plot 3 (treatment-burned and seeded)
2008: Clump of fescue (center) established from seed in 2003. Note gradual colonization by sheep sorrel (red seeded forb lower right and along upper plot frame). California sedge is also present.

FOREST PLAN MONITORING QUESTIONS

Plot number	surface feature (2006)/ species name	cover 2006	cover 7/24/2007	cover 7/24/2008
Burned/seeded 1a	bare ground	90		
Burned/seeded 1a	duff	5		
Burned/seeded 1a	noble fir needle litter	10		
Burned/seeded 1a	Carex californica			2
Burned/seeded 1a	Festuca rubra	0.01	0.01	1
Burned/seeded 1a	Lilium columbianum			0.01
Burned/seeded 1a	<i>Rumex acetosella</i>		2	0.01
Control 1b	bare ground	0		
Control 1b	duff	3		
Control 1b	non-needle litter	30		
Control 1b	needle litter	5		
Control 1b	Achillea millefolium	1	1	0.01
Control 1b	Anemone spp.			0.01
Control 1b	Carex californica	35	40	45
Control 1b	Festuca rubra	25	40	40
Control 1b	Luzula campestris	1	5	
Control 1b	<i>Rumex acetosella</i>	30	30	3
Control 1b	Smilacina stellata	45	30	35
Control 1b	Viola adunca	0.01	0.01	0.01
Control 1b	Danthonia californica			5
Burned/seeded 2a	bare ground	55		
Burned/seeded 2a	duff	5		
Burned/seeded 2a	noble fir needle litter	40		
Burned/seeded 2a	Abies procera		0.01	0.01
Burned/seeded 2a	Achillea millefolium		0.01	0.01
Burned/seeded 2a	<i>Festuca arundinacea</i>		0.01	3
Burned/seeded 2a	Festuca rubra	10	60	45
Burned/seeded 2a	Lilium columbianum		0.01	0.01
Burned/seeded 2a	<i>Rumex acetosella</i>		1	0.01
Burned/seeded 2a	Smilacina stellata		1	0.01
Burned/seeded 2a	Stellaria spp.			0.01
Burned/seeded 2a	Viola adunca			0.01
Control 2b	bare ground	0		
Control 2b	noble fir needle litter	50		
Control 2b	Achillea millefolium	0.01	0.01	0.01
Control 2b	Agrostis spp.	10	12	20
Control 2b	Anemone spp.	0.01	0	0.01
Control 2b	Carex californica	0.01	2	2
Control 2b	Festuca rubra	3	5	8
Control 2b	Pteridium aquilinum	1	25	10
Control 2b	<i>Rumex acetosella</i>	15	10	5
Control 2b	Smilacina stellata	98	80	90
Control 2b	Viola glabella	25	20	25
Control 2b	Viola adunca			1
Burned/seeded 3	bare ground	75		

FOREST PLAN MONITORING QUESTIONS

Plot number	surface feature (2006)/ species name	cover 2006	cover 7/24/2007	cover 7/24/2008
Burned/seeded 3	charcoal	2		
Burned/seeded 3	noble fir needle litter	25		
Burned/seeded 3	<i>Carex californica</i>		5	2
Burned/seeded 3	<i>Festuca rubra</i>	1	18	20
Burned/seeded 3	<i>Rumex acetosella</i>		4	25
Unburned/seeded 4	bare ground	1		
Unburned/seeded 4	noble fir needle litter	98		
Unburned/seeded 4	stumps	2		
Unburned/seeded 4	<i>Carex californica</i>		1	15
Unburned/seeded 4	<i>Festuca rubra</i>	0.01	0	2
Unburned/seeded 4	<i>Lilium columbianum</i>	0.01	0	
Unburned/seeded 4	<i>Luzula campestris</i>	0.01	2	0.01
Unburned/seeded 4	<i>Rumex acetosella</i>	5	20	20
Unburned/seeded 4	<i>Anemone</i> spp.			0.01
Unburned/seeded 4	<i>Abies procera</i>			0.01
Unburned/seeded 4	<i>Smilacina stellata</i>	0.01	0.01	
Control 5	bare ground	0		
Control 5	non-needle litter	50		
Control 5	noble fir needle litter	4		
Control 5	stumps	0.01		
Control 5	<i>Abies procera</i>		0.01	
Control 5	<i>Anemone</i> spp.	0.01	0	0.01
Control 5	<i>Carex californica</i>	30	40	60
Control 5	<i>Festuca rubra</i>	30	30	25
Control 5	<i>Fragaria virginiana</i>	0.01	0.01	0.01
Control 5	<i>Luzula campestris</i>	5	0	
Control 5	<i>Rumex acetosella</i>	15	20	20

Italicized species are non-native.

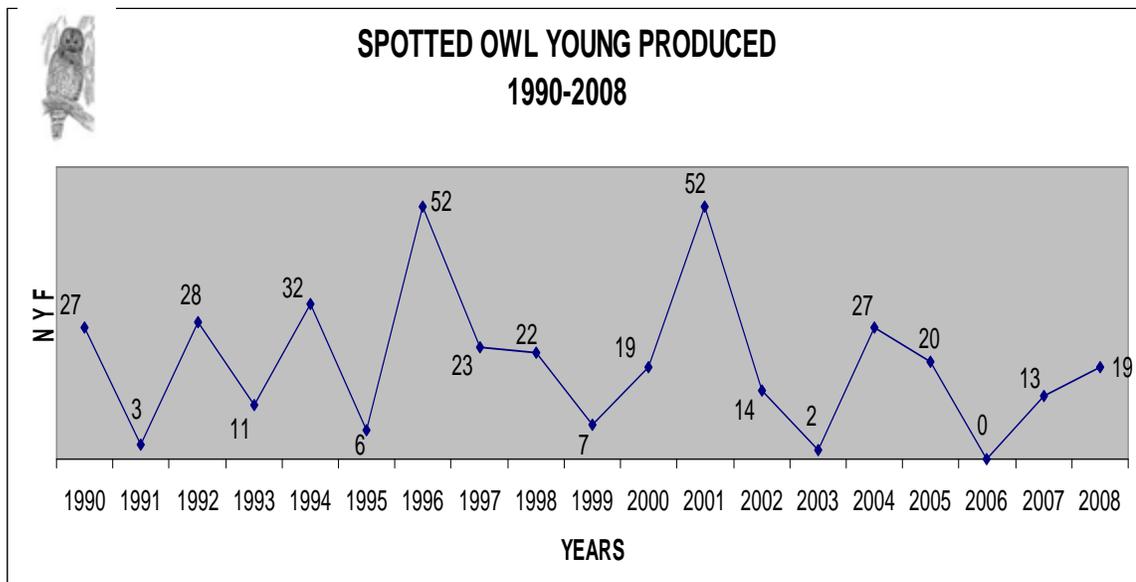
Monitoring Question: Northern Spotted Owl

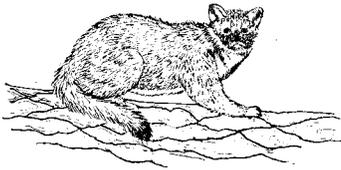
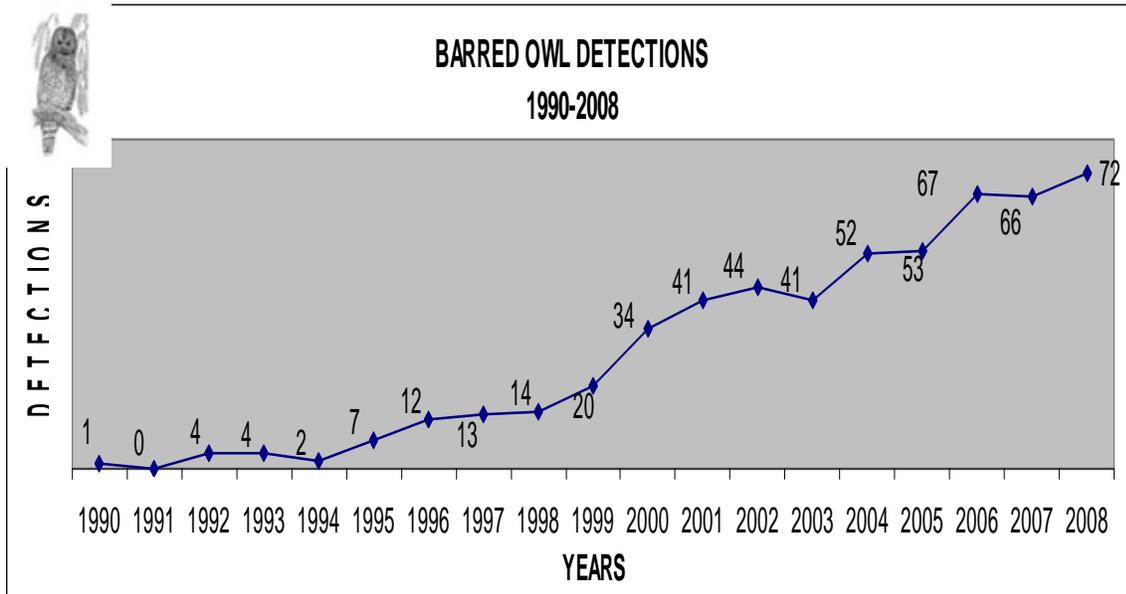


What are the trends in habitat for northern spotted owl pairs and resident singles on the Forest landscape?

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 data trends. The amount of suitable habitat on the Siuslaw 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. The amount of suitable habitat on the Siuslaw 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.





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 Questions: Northern Bald Eagle



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

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 threatened species list by the US Fish and Wildlife Service in 2007. Bald eagles are protected through the Bald Eagle and Golden Eagle Act and are identified as a sensitive species on the Regional Foresters Sensitive Species list.



Questions: 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 cooperatively¹ monitored each year. The population that is monitored includes ocean shores administered by the Forest Service, Oregon Parks and Recreation Department and the Bureau of Land management. The health of the population is moderate 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

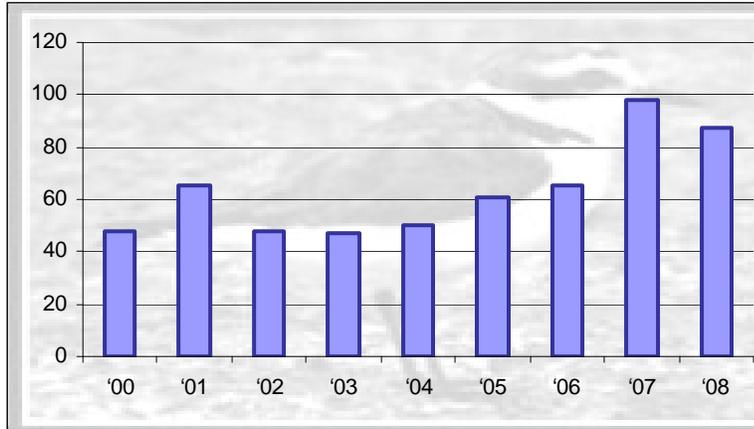
Over 80% of the open, relatively flat sandy areas where snowy plovers traditionally nested in coastal Oregon, have been invaded by European beach and succeeding vegetation over the years.

The Siuslaw National Forest has restored an average of 30 acres of nesting habitat each year for the past 9 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.

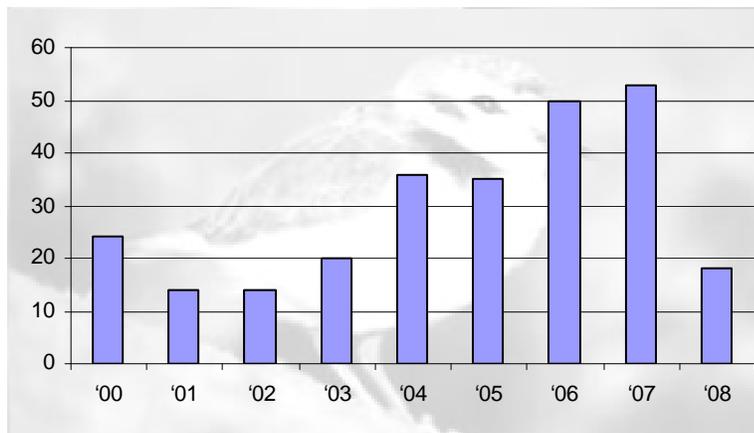
Effective management of both plover habitat and human use requires a comprehensive strategy of public education, habitat protection and enforcement.

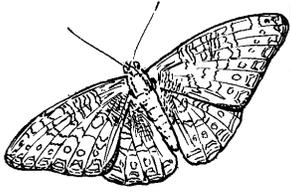
¹ The Oregon Department of Fish and Wildlife, Oregon Natural Heritage Information Center, Central Coast Ranger District-Oregon Dunes NRA, U.S. Fish and Wildlife Service, Bureau of Land Management

Western Snowy Plover Nesting Summary for Siuslaw NF



Fledgling Summary for Siuslaw NF





Questions: Oregon Silverspot Butterfly

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. A 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 a 2006 monitoring report (Hammond, 2006) documented 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 pattern 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 silverspot 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.

The Oregon Silverspot Workgroup made the decision to augment the Rock Creek population with captive zoo-reared butterflies with stock obtained from the Mt. Hebo population in 2007 and 2008. At Rock Creek in 2007 183 butterflies emerged from captive reared pupae (Pickering 2008). The captive rearing program in 2007 was very successful restoring the Rock Creek population to an estimated 200 adult butterflies. Approximately 300 captive reared adults were released at Brays Point and 200 butterflies were released at Rock Creek/Big Creek during August and September 2008 (Hammond 2008). The Mt. Hebo Oregon Silverspot butterfly population rebounded from estimated 400 – 600 adult butterflies in 2005, 1000 – 2000 adult butterflies in 2006 to an estimated 3880 adult butterflies in 2008 without the help of captive reared releases.

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.

Literature Cited

Hammond, P.C. 2006. The 2006 Report of Oregon Silverspot Butterfly Response to Habitat Management at Rock Creek – Big Creek on the Siuslaw National Forest. 16pp.

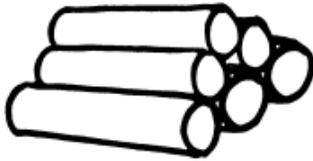
Hammond, P.C. 2008. The 2008 Report and Historical Review on the Response of the Oregon Silverspot Butterfly and *Viola adunca* to Habitat Management on the Siuslaw National Forest. 37pp.

Pickering, D.L. 2006. Population Dynamics of the Oregon Silverspot Butterfly *Speyeria zerene hippolyta* (Lepidoptera, Nymphalidae) at Four Central Coast Sites and Management Trials at Rock Creek. 33pp.

Pickering, D.L. 2008. Oregon Silverspot Butterfly Population and Habitat Monitoring and Field Support of Captive Rearing Efforts. 44pp. Annual Report to U.S. Fish and Wildlife Service on Cooperative Agreement # 13420-06-J604.

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 FY08 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.



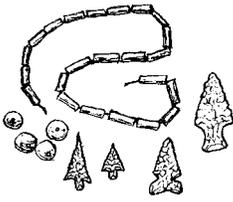
Monitoring Question: Commodity Production

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

The Forest offered and sold 45.4 MMBF of timber in 2008.

Special Forest Product sales 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 1556 permits for a total of \$153,077 in 2007.



Monitoring Question: Cultural Resources

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

Cultural sites and events were highlighted throughout the year as the Siuslaw National Forest celebrated its 100-year centennial. With a kick-off presentation to the Forest Leadership Team and subsequent participation on the Centennial Planning Committee, the Forest Archaeologist took a leading role in promoting understanding of the historic context of forest management to internal and external audiences. An historic images video, "A Century of Growth, 1908-2008" was co-produced with Regional Office photographer, Tom Iraci, and the Siuslaw history research project was contracted with Dr. Ward Tonsfeldt to provide a lasting legacy of the forest's historic properties and activities.

Considerable time and efforts were directed at the historic Heceta Lightstation, where the "Heceta House Bed and Breakfast" continued to operate under a Granger-Thye permit. The site attracted numerous tourists around the world for daily tours, special events and overnight stays. A percentage of the profits were applied to the maintenance and restoration of this National Register historic property. During the fiscal year a Master Development Plan was undertaken by the permittee, and a Landscape and Survey Plan was initiated by the Forest landscape architect, surveyor and archaeologist.

In addition to preservation efforts for the prominent historic structures at Heceta Head, archaeological testing was conducted by the Forest Service across the lightstation, in cooperation with Oregon State Parks and the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians. Testing was necessitated by proposed actions to reconstruct the lower parking area and the recreation trail between the state park, Heceta House, and the lighthouse. Significant archaeological sites were documented in the project area, and an avoidance plan was developed in consultation with the Tribes to protect the cultural resources during project implementation.

In addition to providing assistance during archaeological survey and testing, the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians and the Confederated Tribes of Siletz Indians provided on-site monitoring at other project areas during the fiscal year, including the Tamara Quays dike removal, Cape Cove Trail reconstruction planning, and the Tahkenitch trail and bridge relocation. A possible fish weir was identified at the Salmon River site, and tribal members of the Siletz and Confederated Tribes of Grand Ronde participated in cultural plant preservation in the lower estuary. Meetings with local Tribes were regularly scheduled as part of our ongoing Memorandum of Understanding agreements for consultation and cooperation about projects of mutual interest and concern.

Exploratory testing at a site of a possible Chinese junk (boat) within the Oregon Dunes NRA was undertaken for a second year, with support this year provided by the University of Oregon Museum of Natural and Cultural History staff. The project attracted attention from the media and interested publics. Also, unusually heavy winter off-shore movement

of sand uncovered several shipwrecks, artifacts and ancient stumps on the beach (State)/dunes (Forest Service and BLM) interface providing cooperative monitoring opportunities between agencies.

All cultural properties identified as primary heritage assets (PHA's) were monitored during the year to assess condition and maintenance needs. Non-PHA's were also visited when time and proximity to proposed project areas allowed, with observations entered into the cultural database (INFRA) based on these site visits.

The Forest continues to follow a policy of avoidance of known cultural sites whenever possible. One proposed action (trail reconstruction) at the site of the CCC Cape Creek Camp necessitated moving the trail to an area in the camp that bore no cultural resources. Working closely with the recreation team and engineers, the project readjustment was made at an early stage in the planning process.

A training session was provided for the staff and volunteers at the Cape Perpetua Visitor Center to enhance their presentations and guided walks about the significant cultural resources within the Scenic Area. Five cultural properties have been listed in the National Register of Historic Places within the area, including four prehistoric archaeological sites (shell middens) and structures built by the Civilian Conservation Corps (the West Shelter and Stone Parapet). Interpretive signing at or near these sites provides additional educational information for visitors.

The Passport in Time program offered additional opportunities to enhance understanding of the value and preservation of cultural resources on the Siuslaw National Forest to our public partners. Twenty-one volunteers from seven states contributed over 1500 hours working on Forest heritage projects during this fiscal year. The projects included indexing historic documents and mapping homesteads.

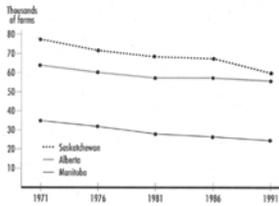


Monitoring Questions: Ownership status

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.

The Forest is currently involved in efforts to consolidate and reduce administrative sites. The former Alsea Ranger District site was sold in 1995 and about 3 acres at the Waldport administrative site were sold in 2007. The Gardiner administrative site (3.25 acres) and the Hillcrest administrative site in Mapleton (89 acres) are scheduled for conveyance in 2009.



Monitoring Questions: 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 100 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.

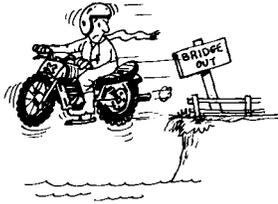


Monitoring Question: Recreation Diversity

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

No specific monitoring of recreation diversity was done in 2008. Recreation construction projects within the National Forest are planned and reviewed for consistency with their recreation opportunity setting. This helps to ensure the diversity of recreation settings on the Forest is retained.

Formal recreation use monitoring is done as part of a national monitoring effort, last undertaken in 2006. This information was part of last year's monitoring report for the Siuslaw National Forest.



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 (approximately 250 acres combined) in the Mapleton Complex near Florence. 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. The areas are currently being analyzed as part of the Forest's Travel Management effort. Decision is expected in May 2009 and implementation in the fall of 2009.

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 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?

Direction for making recreation sites as accessible as possible to people - with the variety of abilities people have - has evolved. For National Forest recreation sites, the comprehensive guidelines are the Forest Service Outdoor Recreation Access Standards and Forest Service Trails Access Standards, both dated 2006.

Site work accomplished since the 1996 Transition Plan for the Forest (which inventoried all Forest recreation sites for how well they met access standards) is being evaluated, beginning in 2007 and continuing in 2008, for how it meets updated access standards.

This information is expected to be included in the next Forest monitoring plan.

During recreation construction projects, the aim is to evaluate and improve the site's accessibility while retaining the natural setting, including the retaining the natural topography. Improvements are steadily being made. Current examples are Hebo Lake Campground where campsites are being improved to be more accessible, and at Giant Spruce trail where – while the trail has steep and uneven sections – trail tread improvements and a bench have improved use of some sections of the trail by people with a wider range of abilities.

No monitoring was done of Forest environmental education programs meeting accessibility in 2008.

The Forest has the objective and makes 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 Forest Roads Analysis (RA), completed in January 2003, validated the previous Access and Travel Management (1994) strategy by establishing a network of key and non-key road systems. The key roads provide the primary public access and receive priority for the Forest's limited maintenance budget. The key road system serves as the principal connections between communities and other roads maintained by public road agencies, major recreation sites and areas of the forest where constant access is needed for the general public, land management and project activities. The non key roads generally are dead end or lower standard project access roads. Non key roads are maintained through project funding and may be closed for periods of time between projects. Potential changes for both road systems are considered when determining access needs during forest restoration project planning processes. The non key road system continues to be downsized to meet landscape level restoration needs for

aquatic and terrestrial watershed health through decommissioning unneeded roads and periodic road closures, while the key road system is expected to remain near the existing mileage to meet recognized long term public and agency access needs. Currently about one-third of the Forest's 2215 miles of system roads are managed as key, the remaining system roads are non key.

Other Group

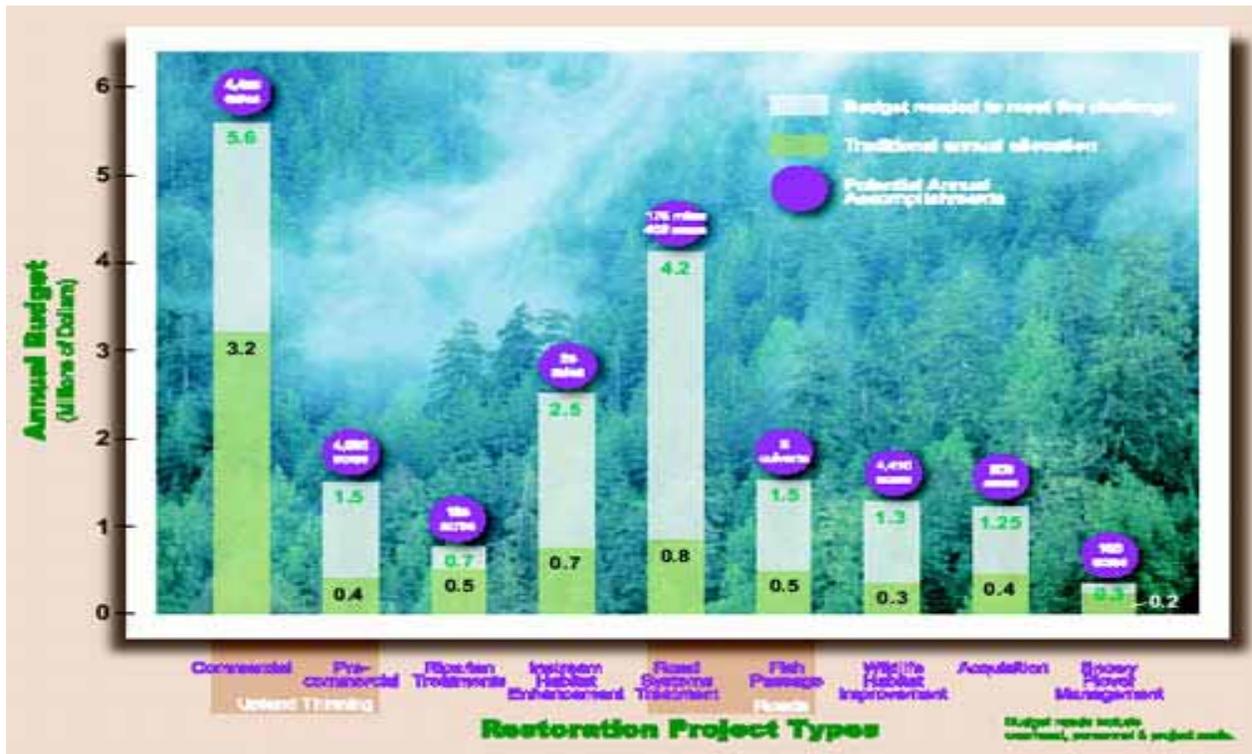
The Forest Standards and Guidelines provide direction to enable the Forest to meet the goals of finding and implementing new ways of meeting Forest goals. Below is a summary of FY08 monitoring questions designed to assist the Forest Supervisor in determining the effectiveness of the Forest Plan Standards 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.



**SIUSLAW NATIONAL FOREST
Final Expenditures**

DESCRIPTION PROGRAM NAMES	FY07 TOTAL EXPENDITURE	FY08 TOTAL EXPENDITURES
Facilities Capital Improvs & Deferred Mtce	\$237,575	\$223,465
Flood Emergency Relief	\$468,968	\$348,052
Forest Products	\$2,194,018	\$2,524,558
Land Management Planning	\$97,715	\$85,263
Land Acquisition Mgmt	Zone Dollars	Zone Dollars
Landownership Mgmt	Zone Dollars	Zone Dollars
Minerals & Geology Mgmt	\$20,056	\$19,258
Rec/Heritage/Wilderness Recreation Fee Demo-Support/Cost	\$588,830	\$606,008
	\$1,746,615	\$1,433,749
Roads Capital Improvs & Mtce	\$1,149,995	\$1,149,086
Senior Programs	No program in FY07	No Program in FY08
Trails Capital Improvs & Mtce	\$164,980	\$158,759
Vegetation & Watershed Mgmt	\$595,140	\$362,626
Wildland Fire, Preparedness Wildlife & Fisheries Habitat Mgmt	\$906,540	\$863,968
	\$1,137,370	\$9,87,555
Inventory and Monitoring	\$312,945	\$313,426
TOTAL	\$9,620,747	\$9,075,770

FOREST PLAN MONITORING QUESTIONS

Title II (RAC)	\$1,415,340	\$1,454,167
Overhead	\$56,715	\$185,535
COUNTY BREAKDOWN		
Lane	\$658,750	\$567,202
Benton	\$10,370	\$34,122
Douglas	\$298,570	\$188,210
Coos	\$20,875	\$23,907
Tillamook	\$282,345	\$182,747
Lincoln	\$87,715	\$272,443

Forest Plan Amendments

FOREST PLAN AMENDMENTS

Amendment	Implementation Date	Type of Change
1	September 30, 1990	Vacates the 1988 ROD which amended the Regional Guide for the Pacific Northwest Region with regard to management of northern spotted owl habitat, and amends all final Forest Plans to vacate the SOHAs established in compliance with the 1988 ROD. Also adopts direction not inconsistent with the ISC recommendations during an interim period. This decision was later found illegal, and was replaced by Amendment #4
2	May 22, 1992	Modifies some standards and guidelines to improve clarification and manageability: changes harvest constraints on subbasins to constraints on subbasin areas (FW-003) (2,000-5,000 acres in size); removes the statement that management plans would be made for potential peregrine nest sites; deletes FW-081 (redundant with FW-110, etc.); clarifies FW-083 seasonal restrictions on activities which disturb stream channels; clarifies FW-090 yarding corridors through riparian buffers to take advantage of natural openings; changes FW-107 (Soil Damage), changes definition of area from "within the project area" to "within each harvest unit, excluding roads and landings", describes detrimental conditions; increases minimum size of logs (large woody material) to be left in harvest units (FW-110); expands FW-123 (Streamside Stability) to include stream-adjacent slopes; deletes FW-152 (Letters of Authorization no longer used); MA 4, Bald Eagle Habitat, changes schedule for completion of management plans; adds some monitoring and evaluation questions; adds some definitions to glossary; other errata.
3	August 26, 1992	Modifies implementation activity schedules for watershed, fish and wildlife projects (Forest Plan Appendix B.)
4	April 13, 1994	Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl - adds land allocations and standards and guidelines to provide a comprehensive ecosystem management strategy for management of late-successional habitat and watersheds.
5	July 12, 1994	Oregon Dunes National Recreation Area Management Plan. Amends direction for the NRA contained in the Siuslaw Forest Plan as Management Area 10. A broad range of ORV and non-motorized recreation opportunities are maintained while enhancing conditions for plants, fish and wildlife. Tenmile RNA is recommended for establishment and two creeks, Tahkenitch and Tenmile, are recommended for addition to the Wild and Scenic River system.
6	March 2, 1995	Supplements the existing standards and guidelines for the regulation of special forest product collection on the Forest. Forest-wide standards and guidelines are added for all special forest products, and new guidelines are added to Management Areas 1, 4-10, 12, 13, and Riparian Reserves.
7	March 29, 1995	Establishes Sandlake Research Natural Area (241 acres) in Tillamook County. This area contains the best example of a parabola dune ecosystem along the Oregon coast.

FOREST PLAN MONITORING QUESTIONS

FOREST PLAN AMENDMENTS

Amendment	Implementation Date	Type of Change
8	July 17, 1996	Adds approximately 45 acres to the Siltcoos Recreation Corridor (Management Area 10-D) on the Oregon Dunes NRA, and reduces a corresponding acreage in MA 10-C (ORVs restricted to Designated Routes). By the change, potential developed overnight capacity on the Dunes will be increased about 18%.
9	June 9, 1997	Establishes Reneke Creek Research Natural Area (480 acres) in Tillamook County and Tenmile Creek Research Natural Area (1190 acres) in Coos County. The Reneke Creek area is dominated by red alder and is drained by two matched perennial streams. The Tenmile Creek area provides an excellent representation of the coastal dune mosaic, including all major dune features, except a parabola dune. It also contains deflation plains in various successional stages.
10	May 21, 1999	Establishes Cummins/Gwynn Creeks Research Natural Area (6,530 acres) in Lane and Lincoln Counties. The area contains a western hemlock/swordfern forest and accompanying coastal stream system (first to third order stream system). The entire watershed of Cummins/Gwynn Creeks contains important functional ecological values and a diverse spectrum of coastal forest communities.
11	May 2, 2000	Changes the Dunes Management Plan management area designation for a three acre area adjacent to Hall Creek from MA 10-A, Non-Motorized Undeveloped Areas to MA 10-D, Developed Corridors. The change allows the development of Day Use Facilities as planned in the Dunes Management Plan.
12	August 22, 2002	Temporary amendment to the Oregon Dunes Natural Recreation Area Plan that changes the management area prescription for a 45 acre blow down area from MA 10 – f, Plant, Fish, and Wildlife Habitats to MA 15-Timber/wildlife/Fish/Dispersed Recreation. This temporary amendment will be effect until the blown down timber is salvaged. Upon completion the area will revert back to MA 10 –F.
13	January 4, 2005	Changes the Dunes Management plan to increase in the capacity of the Horsfall staging area from 42 sites to 70 sites.
14	May 18, 2007	The Wildlife Forest Plan Standard and Guideline, “ <i>Prohibit(ing) collection and transportation of Special Forest Products by motorized means (i.e., chainsaws, vehicles, etc.) or firearms from March 1 to October 1 each year, except for use of roads by vehicles,</i> ” was amended to read, “ <i>There is also the potential to disturb nesting birds during the nesting season (March 1 to September 30). Disturbance events during the nesting season and associated with SFP harvest will comply with the most recent Biological Opinion for Disturbance Only Activities consulted on with the USFWS.</i> ” It also changes the Forest Plan Standards and Guidelines for MA 6 (Cascade Head Scenic Research Area) and MA 7 (Cascade Head Experimental Forest) to allow tribal collection.

List of Contributors

The principal contributors to the 2008 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 Cochran	<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>
Joni Quarnstrom	<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.