

United States
Department of
Agriculture
Forest Service



Pacific
Northwest
Region 6

MONITORING AND EVALUATION REPORT

Gifford Pinchot National Forest Fiscal Year 2010





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A. Introduction

Monitoring and evaluation are important elements in the implementation of the Forest Plan. They are key to making the Plan a dynamic and responsive tool for managing a complex set of natural resources and values in a climate of social and economic change. This document reflects the twelfth year of implementing the Gifford Pinchot National Forest Plan, which was approved on June 1, 1990. It reports Forest activities and accomplishments of fiscal year and compares them to the amended Forest Plan.

The Plan was amended by the Northwest Forest Plan Record of Decision to incorporate new standards and guidelines to ensure protection of late-successional and aquatic ecosystems in April 1994.

Monitoring and Evaluation

There are three types of monitoring:

Implementation Monitoring: determines if goals, objectives, standards and guidelines are implemented as described in the Plan. The question being asked is, “Did we do what we said we would?”

Effectiveness Monitoring: determines if management practices as designed and implemented are effective in meeting the Plan goals and desired future conditions. The concern here is, “Did the management practice accomplish what we intended?”

Validation Monitoring: determines if data, assumptions, and coefficients are accurate. Here, the important question is, “Is there a better way to meet the Plan goals and objectives?”

Our monitoring effort emphasizes implementation monitoring, although several items contain elements of both implementation and effectiveness monitoring.

Evaluation is the analysis and interpretation of monitoring results. Essentially, the question being asked in evaluation is, “Are changes needed?” These changes may involve amending or revising the Plan or changing the way activities are implemented.

Organization of this Report:

Introduction - A brief overview of the monitoring report.

Monitoring Results - At a Glance - Summarizes monitoring results described in detail in Section D.

Monitoring Item Results - Displays the individual results, evaluations and recommended follow-up actions for all items monitored.

Accomplishments - Shows trends in program accomplishments over FYs 1999-2004 and compares accomplishments to our assigned targets (page 21).



Expenditures - Compares expenditures over the last 10 years and the composition of FY 2004 expenditures (page **Error! Bookmark not defined.**).

Forest Plan Amendments - Lists all Forest Plan amendments, and briefly describes the content of each, and when it was approved (page **Error! Bookmark not defined.**).

Other Monitoring Activities – This section highlights monitoring activities not directly related to implementation of the Forest Plan (page 21).

Glossary of Terms - Definitions of the technical terms used in this document (page 23).

- ☺ Standard and guideline met, or no activities to monitor.
- ☹ Mixed results or mitigating circumstances.
- ☹ Need for improvement/Information missing
- ⓘ Information item, not a standard and guideline.



D. Monitoring Results

Wild and Scenic Rivers ¹ ☹️

No data available

Semi-Primitive Recreation ² ☹️

No data available

Scenic Quality ³ ☹️

No data available.

Wilderness Use and Condition ⁴ ☹️

No data available.

Trail Inventory and Condition ⁶ ☹️

No data available.

Developed and Dispersed Recreation Use and Facility Condition ⁷ ☹️

No data available

Heritage Resource Protection ¹¹ ☹️

No data available

Reforestation 50 

Planting - In 2010 the Forest planted 476 acres; 268 acres in past fires (264 within the Cold Springs Fire boundary), 123 acres related to harvest activities, and 87 acres of under planting for enhanced structure development. As of the end of fiscal year 2010 the forest has an inventory of 366 acres still needing reforestation needs.

Planting is only the first step in a successful planting program. Maintenance of plantations to assure that seedlings are successfully established and growing is the next step. A variety of factors can prevent successful establishment, including site conditions (i.e. shrubs overtopping seedlings), environmental extremes such as drought or frost, and animal damage such as from pocket gophers or big game wildlife species. To assure that plantations are established, surviving and growing, the Forest performs stocking surveys to assure that none of these factors are significant enough to prevent the targeted number of seedlings from becoming established after 5 years. During 2004, the Forest completed 319 acres of plantation survival surveys; only first year surveys were performed. All sites were above 84% survival after the first growing season. They will be monitored for one to two more years to assure they are adequately stocked. Neither stocking surveys nor plantation survival surveys were performed in enhancement planting areas.

Timber Stand Improvement - Thinning in young stands (stands less than 20 years old) is becoming less of an emphasis on the Forest. All sources of funding for this type of work are in a declining trend. In the Matrix allocation, this program concentrates on plantations with a goal of reducing conifer stocking to density levels that maintain vigorous stand growth, reduce the impacts of insects and disease and maintain options for the future treatments. Within Late Successional Reserves and Riparian Zones thinning is done for the same reasons but also to begin to develop structural and diversity characteristics that will assist these stands in developing late successional characteristics such as large trees, snags and downed wood. Examples of things that are done include the creation of small openings, using variable spacing techniques throughout the stand, and leaving uncommon tree species such as cedar or cottonwood. This year the Forest completed 3,250 acres of young stand thinning across the Forest, almost all of which occurred in matrix designated land allocations.

Community support for young stand thinning continues to show in funding awarded from both the North and South Regional Advisory Committees (RAC). In addition, the Rocky Mountain Elk foundation (RMEF) continues to be a significant contributor to the young stand thinning/release work on the Forest. These two sources of funding accounted for close to 56 percent of the Forest young stand thinning/release acre accomplishments. The rest came from a combination of Knutson-Vandenburg (CWKV) and Special Forest Products (TPBP) Trust Funds and appropriated monies.

Pruning and fertilizing noble fir for boughs on the Forest continues to provide jobs and product into the local economies. It is also an important source of revenue both to the economy and is a source for getting additional work done on the ground. Special Forest Product Trust funds collected from these sales are being utilized to thin and fertilize additional young conifer stands to produce a future harvest of high quality material as well as to thin young stands. In 2004, the Forest hand-fertilized 519 acres of noble fir dominated stands, and thinned approximately 350 acres.



Timber Harvest Methods ⁵¹ ⓘ

No data given

Regeneration Harvest Units Size ⁵² ☺

Monitoring regeneration harvest units size determines whether timber sales that had NEPA decisions signed during the fiscal year containing regeneration harvest units meet the objectives of size, separation, and natural appearance defined in the Regional guidelines for timber sale preparation.

No NEPA decisions were signed in 2010 for sales that included regeneration harvest units.

During 2010 this item was not applicable because no decisions were signed that contained regeneration units.

Recommended Action to Be Taken:

No corrective action needed, continue monitoring.

Timber Volume Awarded ⁵⁴ ⓘ

The 2010 sale goal was 48,946 CCF or roughly 25.5 million board feet (MMBF) of new sales. The Forest did not meet this target. Actual volume awarded from sales in 2010 was 16.5 MMBF or 31,234 CCF of new sales; 63.8% attainment. Treatment acres totaled approximately 1,340 acres. All of this volume came from commercial harvest using retention harvest treatments.

Table 1 - Volume Sold in FY 2010

Volume Sold MMBF	Volume sold MCCF	Projected Volume MMBF	Projected Volume MCCF	% of Projection	Remaining MMBF Under Contract
17	31.2	16.5	48.9	63.8%	48.3

Silvicultural Prescriptions 56 

Introduction: Vegetation management on the Gifford Pinchot is dynamic. It varies based on the current condition of the vegetation and is blended with the goals and objectives identified in the Northwest Forest Plan and the Forest's Land and Resource Management Plan. The Forest monitors overall condition with a number of tools including permanent inventory plots, aerial reconnaissance, and stand level inventories that are maintained within national corporate databases; e.g. FACTS, and FSVeg.

2010 Sale Program - In 2010 the timber sale program was developed around commercial thinning. Of the large sales sold during 2010, 1338 acres are prescribed for treatment with commercial thinning. These sales will be implemented within the next 2-3 years.

The Forest sold one sale on the Cowlitz Ranger District; Kirk TS, one sale on the Mt. Adams Ranger District; Sawtooth TS, and two sales for the Columbia River Gorge National Recreation Area (CRGNSA); Catherine Creek Stewardship and Burdoin Mtn. Stewardship. The two sales on the CRGNSA were Integrated Resource Timber Sales.

The CRGNSA and the Gifford Pinchot NF have an agreement to shall resource expertise. The Gifford Pinchot NF performs the sale offer and sale administration duties for any sales on the CRGNSA that occur on the Washington State side of the Columbia River.

The forest did not perform formal field reviews of timber sales or silvicultural prescriptions in fiscal year 2010.



Raptors Habitat for: Osprey, Swainson’s Hawk, Goshawk, Ferruginous Hawk, and Great Blue Heron ^{35b} 😊

Introduction: The Forest Plan (page 2-75) provides standards and guidelines aimed at minimizing the disruption of habitat during critical nesting periods. Direction is also provided to minimize disturbance of key winter habitat. Species protected include: Bald Eagle, Peregrine Falcon, Golden Eagle, Osprey, Swainson’s Hawk, Goshawk, Ferruginous Hawk, and Great Blue Heron

No projects were found to have the potential to affect these species.

Results: No proposed projects had the potential to affect these species or were implemented near known nest sites in 2010.

Recommended Action to be Taken: No action required.

Legacy Features ⁴⁰ 😐

Introduction: Residual green trees and dead wood in harvested areas function as a bridge between past and future forests. Green trees serve several important functions: they are available for snag recruitment, contribute to multistoried canopies, and provide shade.

Dead and partially dead trees or snags are important to certain wildlife species. To provide suitable habitat, a snag needs to be at least 17 inches in diameter and 40 feet high. They serve as breeding areas, shelter, and a host to insects, which provide food for birds. Species dependent on snags include the pileated woodpecker and several other woodpecker species, red-breasted sapsucker, red-breasted nuthatch, and northern flicker.

Ecological studies are expanding our understanding of the role of down woody material in forest ecosystems. Down logs are important because of their role in mineral cycling, nutrient mobilization, and moisture retention. In addition, down logs provide structure and habitat suitable to many wildlife species.

Evaluation: The average age of the harvested stands is <80 years. Legacy features (large snags or down wood) within stands are protected by placing skips around the area. There is little or no opportunity to create snags due to the size of the trees.

Invasive Species (Noxious Weeds) ⓘ

No data given.

Grazing ⁴⁵ ☹️

No data given.

Research Natural Areas ⁵ 😊

Introduction: The Forest Plan forbids any activity within a Research Natural Area (RNA) that would adversely affect the natural values for which the RNA was established. Prohibited activities include livestock grazing; timber and miscellaneous forest products harvest; recreation development and use; road construction; temporary facility installation; unlawful mining or mining of common variety materials; establishment of exotic plant, animal, or insect species; and establishment of non-endemic levels of insects, pathogens, or disease.

The Forest Plan forbids any activity within an RNA that would adversely affect the natural values for which it was established.

The seven areas designated as RNAs through the planning process are listed in Table 2. These areas provide representative examples of biologically important ecosystems and are managed to conserve their biological diversity. They serve as undisturbed controls for comparison with managed areas and are valuable for studying natural processes. Research Natural Areas are permanently protected federally designated reserves where long-term studies that contribute to our knowledge of the ecosystem are encouraged. The standards and guidelines for Research Natural Areas focus on maintaining their natural state for research and education. These standards and guidelines also apply to three proposed RNAs until they are evaluated for RNA designation. Monitoring serves to evaluate whether the natural conditions of the Research Natural Area have been modified, and prescribes corrective actions if necessary.

Table 2 - Research Natural Area Monitoring

Research Natural Area	Last Monitored	Standards & Guidelines Met?
Butter Creek	2003	yes
Goat Marsh	2003	yes
Sisters Rock	2004	yes
Steamboat Mountain	2004	yes
Cedar Flats	2000	yes
Thornton T. Munger	2004	yes
Monte Cristo	2000	yes
Proposed Smith Butte	2001	yes

Results: No RNAs were monitored in FY 10. The nursery fields adjacent to the Thornton T. Munger were treated for invasive species. Treatment will continue in FY11.



Fish/Riparian S&G Implementation ^{62a} 

No data given.

Effectiveness of Riparian Standards and Guidelines ^{62b} 

No data given.

Proposed, Endangered, Threatened, and Sensitive (PETS) Fish Species ^{62c}



No data given.

In-Channel Habitat Structures ^{62d} 

No data given

Level II Stream Surveys 

Soil Productivity ⁶⁰ 😊

Introduction: Maintenance of soil productivity is essential to sustaining ecosystems and is mandated by every act of Congress directing national forest management. Region 6 Forest Service Manual (2550.3-1, R6 Supplemental # 50) and the Gifford Pinchot National Forest Plan require a minimum of 80 percent of an activity area to have unimpaired soil productivity.

Two projects were assessed for compliance with this standard: Unit 32 of the Helitower Timber Sale and the Middle-Service Trails Reconstruction Project, site numbers 3 to 10 and number 12. The Forest Service Soil Scientist assessed soil productivity by measuring the extent of detrimental soil conditions, considering Region 6 standards and guidelines. Assisted by GIS technology, detrimental conditions were measured by visually estimating the dimensions of skid trails, roads, and landings. The field investigation targeted the most likely disturbed areas, noting displacement where subsoil was exposed.



Photo: Aldo Aguilar

Figure 1 - Trail Reconstruction Relocated a Popular Trail Around Steep, Eroding Soils



Results: Detrimental soil compaction and soil displacement increased to approximately one percent of Helitower Timber Sale's Unit 32, based on the area occupied by the landing and temporary road. The Forest Plan standard allows for 20 percent disturbance. The deep ripping mitigation measure (to restore soil compaction) was delayed for firewood cutting.

The areas monitored met the standards for protection of soil productivity.

The majority of detrimental soil conditions where the Middle Service Trail Reconstruction took place are due to pre-existing impacts, mostly National Forest System recreation trails. With respect to Forest Plan standards and guidelines, the extent of detrimental soil compaction and displacement was not calculated – the project area does not have a delineated boundary.

Evaluation: The monitored projects met the standards and guidelines for long-term soil productivity. When the ripping mitigation measure is completed, the Helitower Timber Sale will comply with specifications in the contract and mitigation measures in the Environmental Analysis.

The structures constructed through the Middle Service Trail Reconstruction project addressed the inherent rutting and erosion problems (Figure 1). On the right side of the photo, access to damaged soils on the old layout was blocked by boulders. The project itself did not increase the severity of detrimental soil conditions, and damage to previously undisturbed soils was minimal in extent.

The Helitower unit was logged with a helicopter logging system design. This resulted in less detrimental soil conditions than a ground-based logging system would have.

Recommendations: Monitor the prescribed deep ripping (subsoiling) of the landing and temporary road on Helitower Timber Sale's Unit 32.

Best Management Practices (BMPs) 61 ☺

Introduction: Best Management Practices are the primary mechanism to ensure water quality standards are met during project implementation. Best Management Practices (BMPs) are selected and tailored for site-specific conditions to provide project level protection of water quality. The Clean Water Act and the National Forest Management Act directs us to protect streams, streambanks, shorelines, lakes, wetlands and other bodies of water from detrimental changes in water temperature, blockages of water courses, and deposits of excessive sediment, where activities have the potential to seriously and adversely affect water conditions or fish habitat.

Tee Timber Sale

Three harvest units of the Tee Timber Sale were monitored in the summer of 2008 for compliance with Best Management Practices (BMPs) using the National Protocols. Best Management Practices for skid trails were monitored in Unit 29 and Unit 40 and landings were monitored in Unit 40.

Skid Trails

Best Management Practices specified as project design features and mitigation measures in the TEE Timber Sale for skid trails were:

Prior to felling, skid trails would be pre-designated and approved for all ground-based equipment operations, and spaced a minimum of 150 feet apart. Existing skid trails would be used if possible rather than creating new ones.

All equipment would be confined to approved temporary roads, skid trails and landings during yarding operations. Skidders would remain on approved skid trails and winch logs as necessary.

Areas where rutting exceeds 6 inches in depth for a length of ten feet or more will be prohibited from further ground-based equipment passes to prevent detrimental rutting of the soil.

If partial suspension logging systems gouge the surface greater than 12 inches deep for a length of 10 feet or more, rehabilitate with cross drains (if ground is sloping) and erosion seeding or pile slash over them.

Prior to any expected seasonal period of precipitation and runoff, and after sale activities are complete, cross drains and grade breaks would be installed in all temporary roads, skid trails, landings and skyline corridors.



The contract specifications for skid trails in were:

BT6.65 Skid Trails and Fire Lines. Purchaser shall construct cross ditches and water-spreading ditches on tractor roads and skid trails, where staked or otherwise marked on the ground by Forest Service....By agreement, Purchase may use other comparable erosion control measures, such as backblading skid trails, in lieu of cross ditching.

Where feasible, use existing skid trails.

Machinery will not be operated where soil water content is high or in areas where rutting exceeds 6 inches in depth for a length of 10 feet or more.

Within those areas designated on the Sale Area Map as (GB) or Ground Based, the yarding system is expected to maintain one-end suspension of logs during in-haul. Site specific terrain features may require pulling line at least 100 feet from designated skid trails. Lining operations will be accomplished by yarding to lead, or at a 30-45 degree angle towards skid trails wherever possible.

Location of all skid roads, landings, and temporary roads shall be approved by the Forest Service prior to felling operations.

Unit 40 best management practices for skid trails were implemented and met contract requirements. Implementation of the best management practices were effective at preventing formation of rills or gullies and limiting rutting (2" deep or greater) to <10% of the skid trail areas.

Unit 29 skid trails were not 150 feet apart but instead were in a radial pattern due to the shape, size and slope of the unit. Limited slash was available but what was available was placed within the skid trails. No cross-drains or grade breaks were installed on the skid trails.

The lack of best management practice implementation resulted in slight compaction on the skid trails and one puddle in one of the skid trail ruts. Rills greater than 2" deep and greater than 10' long were present. Rutting 2" deep greater than 10% of the surface length were also present on one of the skid trails. Disturbed sediments were not transported towards any stream management zones. The magnitude of the erosion and rutting on the skid trails was rated as moderate with duration of greater than one season. The problem occurred in the Contract Administration phase of the project as the TEE EA specified "Prior to any expected seasonal period of precipitation and runoff, and after sale activities are complete, cross drains and grade breaks would be installed in all ... skid trails, ..." should have resulted in the Timber Sale Administrator to stake or mark areas along the skid trails where rutting was present and which needed cross drains or grade breaks.

The National Protocols field criteria for rutting concerns is defined as greater than 2” deep at greater than 10% of the surface length. This criteria depth (>2”) is less than the depth specified in the project design criteria (> 6”). Future timber sale project design criteria or mitigation measures should consider consistency with the National Protocol criteria.

Landings

Best Management Practices specified as project design features and mitigation measures in the TEE Timber Sale for landings were:

Temporary roads and landings will be subsoiled to a depth of 20 inches. Subsoiling and grass seeding must be done immediately following logging and create an uneven, rough surface without furrow. Proposed alternative methods to subsoiling must be approved by a qualified specialist in consultation with the sale administrator and documented.

Available logging debris and slash would be scattered onto the subsoiled roads and landings to maintain organic matter levels.

Location of all skid roads, landings, and temporary roads shall be approved by the Forest Service prior to felling operations.

No equipment will be allowed in Riparian Reserves.

Prior to any expected seasonal period of precipitation and runoff, and after sale activities are complete, cross drains and grade breaks would be installed in all temporary roads, skid trails, landings and skyline corridors.

The contract specifications for landings were:

Location of all skid roads, landings, and temporary roads shall be approved by the Forest Service prior to felling operations.

BT6.64 After landings have served Purchaser’s purpose, Purchaser shall ditch and slope them to permit water to drain or spread. Unless agreed otherwise, cut and fill banks around landings shall be sloped to remove overhangs and otherwise minimize erosion.

Unit 40 best management practices for landings were partially implemented as the landing was only partially scarified. Forest debris scattered on the surface was not implemented. The problem occurred in the contract phase of the project as contract specifications did not include the scarification of landings. This was considered a minor departure from contract/project requirements. Corrective actions include subsoiling entire landing and scattering logging debris and slash.

The effect of only partially scarifying the landing and omitting the scattering of forest debris was limited rilling occurred (less than 1 rill per 20’ of transect) on the landing surface. Landing surface drainage runoff from concentrated flow was

very minor. No rilling on the landing fillslopes or associated sediment deposition below fillslopes were evident. This resultant disturbance was considered of minor magnitude with less than 1 season duration and extent limited to the landing.

Stream Temperature Monitoring ⓘ

Introduction: The Clean Water Act and the Northwest Forest Plan directs the Forest to maintain the physical, chemical and biological integrity of our aquatic resources. The Forest Plan mandates the Forest manage its streams to fully support all designated beneficial uses of water. Cool water temperatures are important in providing quality aquatic habitat and maintaining beneficial uses.

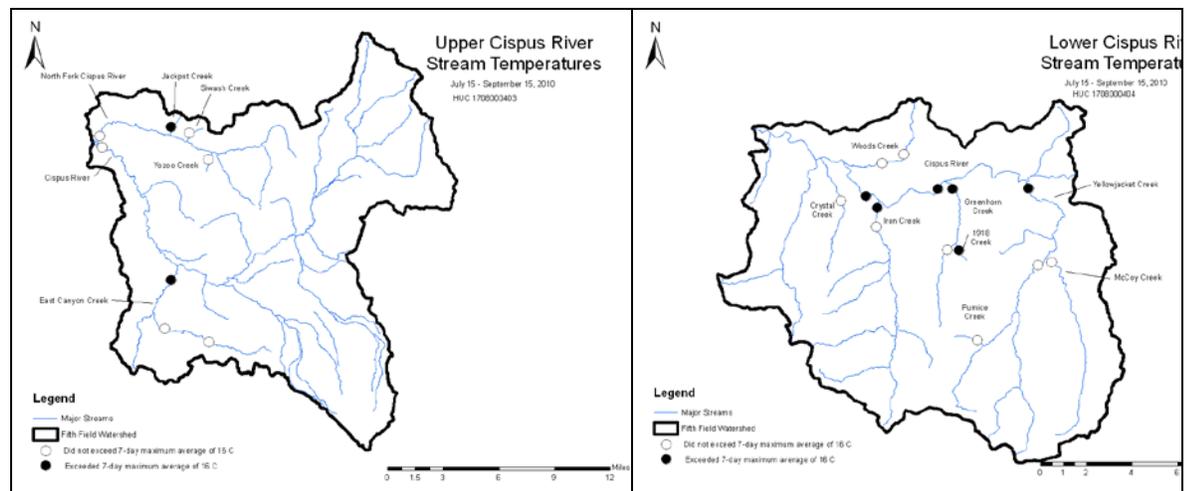
The 303(d) list is considered those water bodies in the Washington State Department of Ecology proposed Category 5 – in this context, waters that exceed 16 degrees C (61 F). Forty water bodies on or immediately downstream from lands managed by the Gifford Pinchot NF are listed in Category 5.

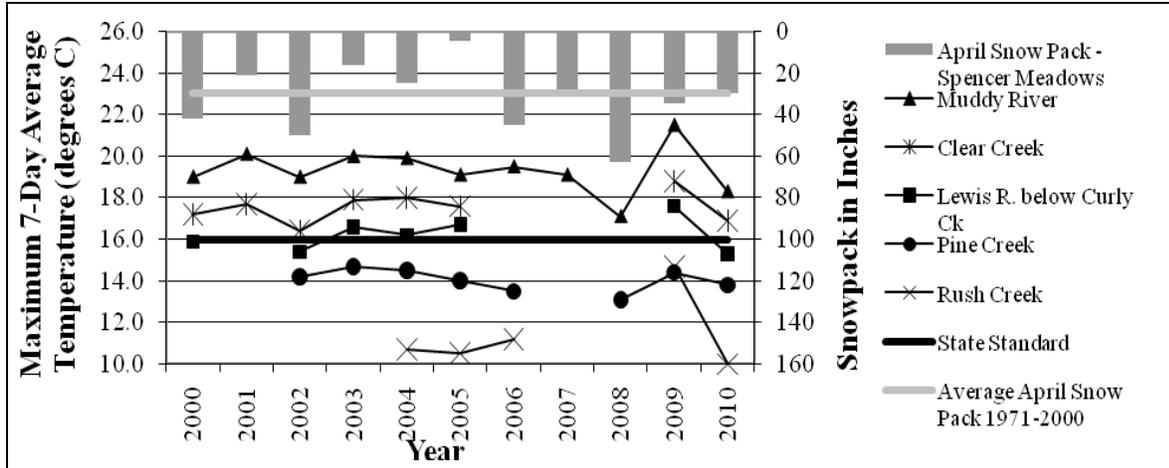
Table 3 - 25 Streams on the Gifford Pinchot NF that have at least one Category 5 Segment

Watershed	Stream	Comments
Upper Cispus River	Walupt Creek	Natural lake exposed to solar radiation releases warm waters to creek.
	East Canyon Creek	Has Water Quality Restoration Plan
	North Fork Cispus River	Has Water Quality Restoration Plan
	Cispus River (11N 10E 25)	No Forest Service data exceeds standard – possible listing error.
Lower Cispus River	Pumice Creek	Has Water Quality Restoration Plan
	Yellowjacket Creek	Has Water Quality Restoration Plan
	Greenhorn Creek	Has Water Quality Restoration Plan
	1919 Creek	Has Water Quality Restoration Plan
	Iron Creek	Has Water Quality Restoration Plan
	Cispus River	3 segments
Middle Cowlitz River	Lake Creek	
	Lynx Creek	
	Silver Creek	2 segments
Nisqually River	East Creek	
	Little Nisqually River	
	Little Nisqually River – West Fork	2 segments
Muddy River	Clearwater Creek	
	Clear Creek	
	Muddy River	2 segments
Upper Lewis River	Quartz Creek	2 segments
	Lewis River	2 segments
Yale Reservoir	Siouxon Creek	
East Fork Lewis River	Copper Creek	Has Water Quality Restoration Plan
	East Fork Lewis	Has Water Quality Restoration Plan
Little White Salmon	Little White Salmon River	2 segments

Stream temperature data was collected at x sites (31 CV, 13 MSH, X MTA) within 16 watersheds on the Gifford Pinchot National Forest during the 2010 summer. Water temperatures are consistently below 16o C in all streams monitored within eight of the 16 watersheds. The Upper Cispus River, Lower Cispus River, Middle Cowlitz River, Upper Nisqually River, Muddy River, Upper Lewis River, East Fork Lewis and Wind River have more than one stream where the 7 day maximum average exceeds the Washington State standard of 16o C. Two sites exceeded the state standard within the Upper Cispus River Watershed during 2010. East Canyon Creek has exceeded the state standard eight of the sixteen years since 1994. The 7DMAX was 16.4 in 2010, and has ranged from a low as 14.3 oC the summer after a winter with high snow pack to a high of 17.9 in 1994, the first year monitored. The North Fork Cispus was below the state standard in 2010 and remains below the state standard most years, with a few exceptions such as the warm summer of 2009 when the 7DMAX was its highest recorded, 16.9 oC. Jackpot Creek exceeded the standard with 16.2 oC 7DMAX in 2010, the only year it has been sampled.

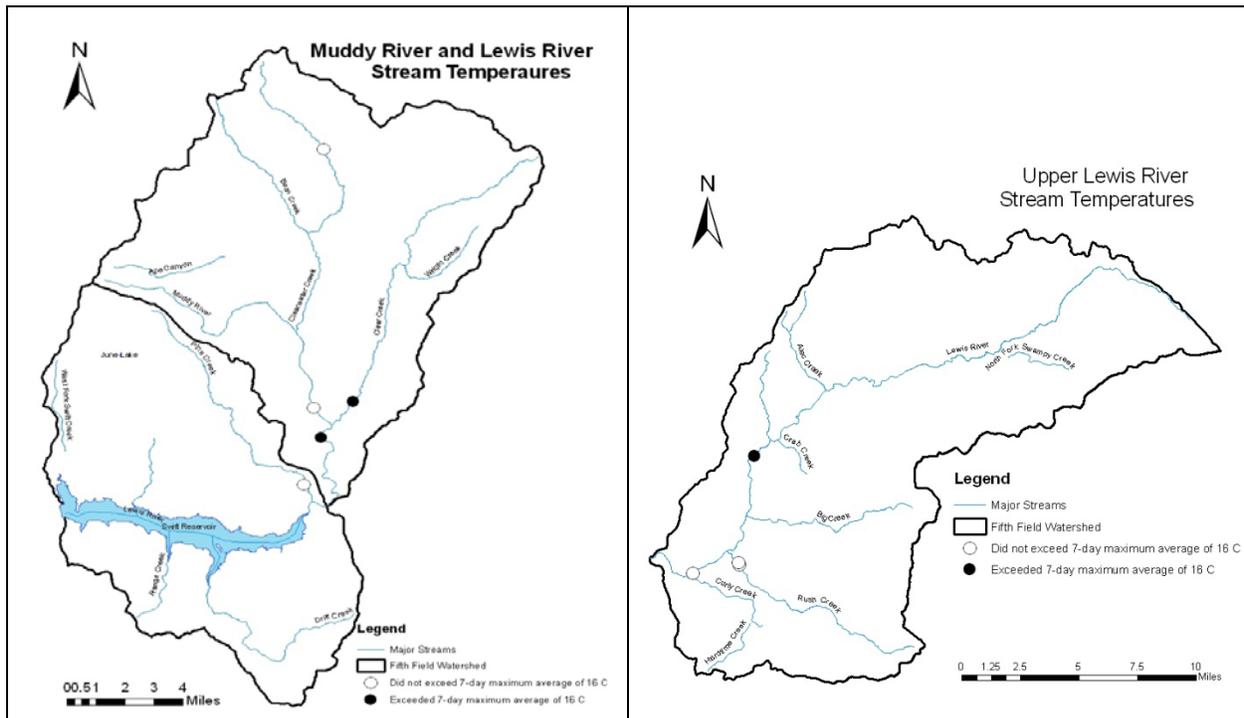
Six sites exceeded the state standard within the Lower Cispus River Watershed during 2010. Three sites are at the base of the largest subwatersheds, Yellowjacket, Iron and Greenhorn Creeks flowing into the mainstem Cispus River. Two are along different sites of the Cispus River mainstem and one is 1918 Creek. All of these sites 7DMAX exceed the state standard most years although are cooler during years with higher snow packs, such as in 1999 and 2008 (Figure).

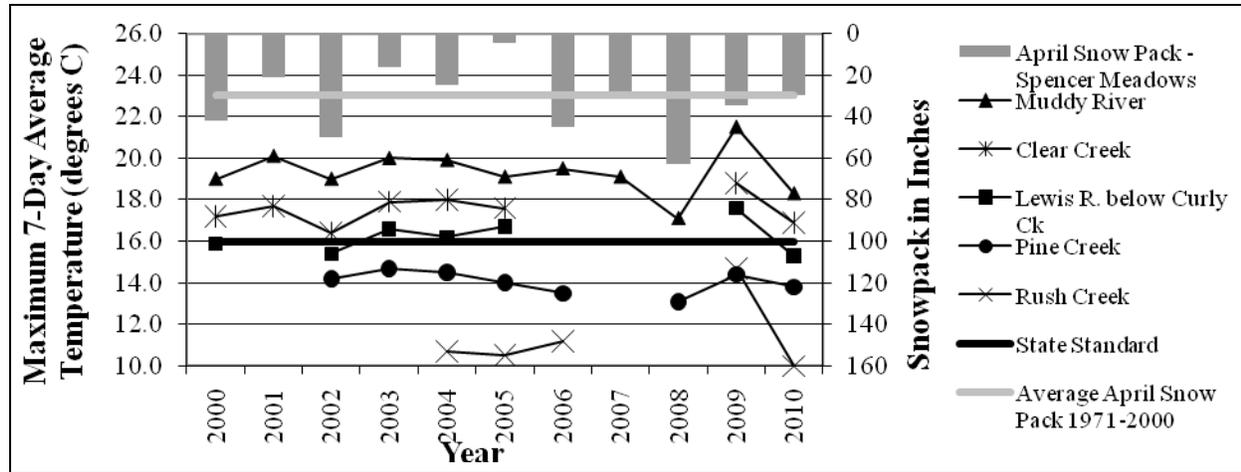




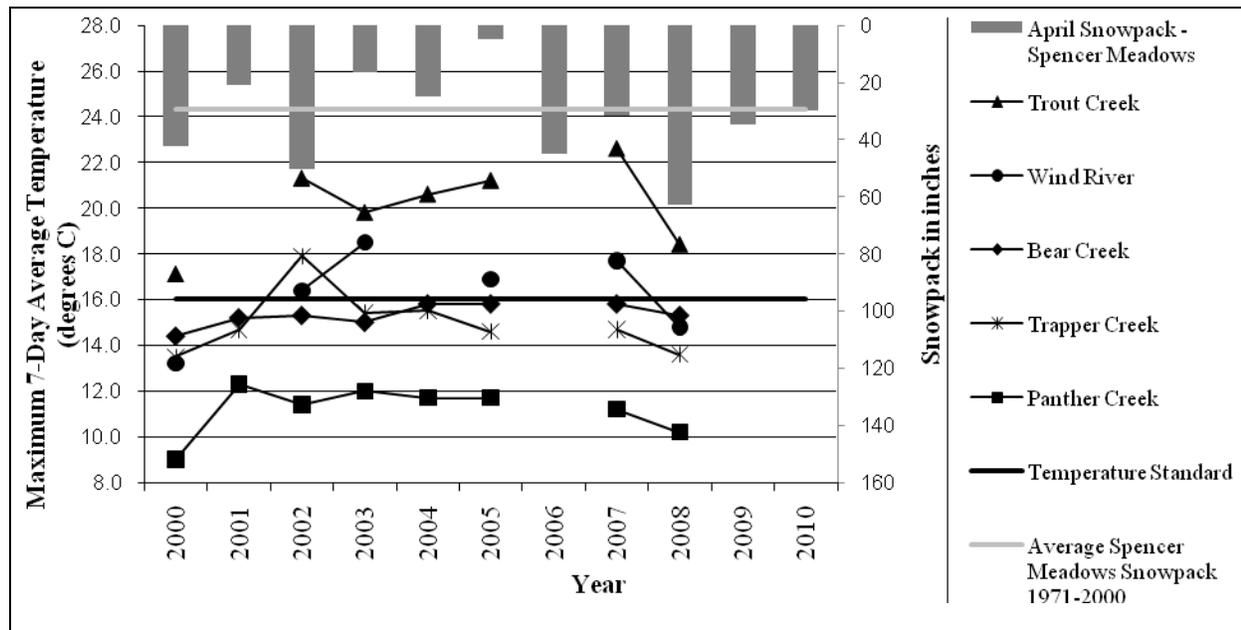
Two of the four sites monitored within the Muddy River Watershed exceeded the state standards consistently including in 2010. Pine Creek has known populations of bull trout where the 7DMAX has varied over the past years monitored and ranges from a low of 13.1 to a high of 14.7. The standard for Bull Trout habitat is 12.0 oC.

Similarly, one of the two sites monitored along the Lewis River exceeded the state standard in 2010. This site has exceeded the state standard 7 of the 9 years monitored. The lower river site monitored exceeds the state standard most years but did not in 2010. Rush Creek is consistently cool and the other stream on the Gifford Pinchot NF with bull trout. The 7DMAX was 10.0 OC in 2010.





Wind River





Road Management ⁷⁰ 

Data not available.

Community Effects – Payments to Counties 

Data not available.

Mining Operating Plans ⁹¹ 

Data not available.

H. Other Monitoring Activities

The Forest routinely conducts a wide range of monitoring activities that are not directly linked to the Forest Plan. Examples of these monitoring activities, which we conduct to evaluate the effectiveness of resource program management and trends in the resources, are briefly described in this section.

Forest Health (Insects and Disease Monitoring)

Insects, disease, and other biotic organisms play a major role in the overall development of the vegetation on the forested landscapes of the Gifford Pinchot National Forest. They also play an important role in monitoring overall forest health. From one aspect, insect and disease provides an important function on our landscape by being a part of the overall diversity, as well as being an important component that creates additional diversity in our landscapes. For example, they are important in the development of snags and down wood, create small and sometimes large gaps, and affect the type and amount of tree species that can occupy a site. From another aspect if vegetative conditions are created such that forest stands are under significant stress these insects can cause significant mortality and lead to large-scale mortality that can lead to severe fires.

Overall, the forest at this point is healthy with regard to insect and disease. The majority of insects and disease are at endemic levels and are actively creating snags, downwood, and providing other functions to the landscape. One area, just south of Mount Adams continues to be a concern regarding forest health. Many believe that the major factor causing mortality in this area is western spruce budworm. However, looking closer at this area, we find that budworm is only one factor causing this mortality. There is actually a complex of insects and diseases in addition to western spruce budworm that is acting on this system. Native root rots and bark beetles, in addition to the budworm, are acting to cause mortality in this area. In addition, a species of insect from Europe, the balsam wooley adelgid (*Adelges piceae*) is causing mortality in this area. This complex is acting on a landscape that has high stocking and a species composition that is outside the natural range of variability and under stress. Monitoring of insect and disease is the key to identifying areas of concern with regard to forested vegetation. Monitoring will be followed by treatment where needed.

For a number of years Region 6 of the Forest Service (Washington and Oregon) has been monitoring the forested landscapes of not only the Gifford Pinchot but also the rest of Oregon and Washington. They monitor through an aerial survey that is conducted annually from July to September, and identifies and maps the location and general size and effect of various insects, disease and animal damage, such as bear. While not statistically accurate it is an excellent for monitoring the trends in organisms that are affecting the landscape. Publications and maps associated with these annual surveys can be reviewed or downloaded at:

<http://www.fs.fed.us/r6/nr/fid/as/>



Table 4 displays the trend of incidence (count) and total acres of incidence (Acres) of major damaging agents (Agents) between calendar years 2009 and 2010.

Table 4 - Trend in the incidence and acres of forest damaging agents between 2009 and 2010 growing seasons

DESCRIPTION	FY09 Count	FY09 Acres	FY10 Count	FY10 Acres	Trend from FY09 to FY10
Douglas-fir Beetle	882	10,229	1083	4,267	DOWN
Fir Engraver	127	4,477	200	2,241	DOWN
Western Balsam Bark Beetle, Sub-Alpine Fir	0	0	14	282	UP
Mountain Pine Beetle, Whitebark Pine	4	300	12	32	DOWN
Mountain Pine Beetle, Lodgepole Pine	92	5,178	163	6,004	UP
Mountain Pine Beetle, Ponderosa Pine	5	523	7	80	DOWN
Mountain Pine Beetle, Western White Pine	27	137	14	256	UP
Western Pine Beetle, Pole-size Ponderosa Pine	0	0	6	12	UP
Silver Fir Beetle	0	0	4	10	UP
Balsam Woolly Adelgid	28	7,990	46	2,553	DOWN
Maple discoloration	0	0	3	26	UP
Bear Damage	704	69,523	495	21,909	DOWN
Blister Rust	1	38	2	4	DOWN
Western Spruce Budworm	0	0	4	172	UP
Dying Hemlock	6	162	31	435	UP
Hardwood decline	1	27	1	50	UP
Needle cast, Larch	0	0	18	647	UP
Water Damage	6	78	3	17	DOWN
Totals	1883	98663	2106	38998	DOWN

I. Glossary

A

Anadromous fish - Those species of fish that mature in the sea and migrate into streams to spawn. Salmon, steelhead, and searun cutthroat trout are examples.

B

Big game - Large mammals hunted for sport. On the National Forest, these include animals such as deer, elk, antelope, and bear.

Big game winter range - A range, usually at lower elevation, used by migratory deer and elk during the winter months; usually more clearly defined and smaller than summer ranges.

Board Foot = a piece of wood 12 inches wide by 12 inches long by one inch in width

MBF= 1000 Board Feet, approximately 1.94 CCF
depending on growing site

CCF= 100 Cubic Feet

MCF= 1000 Cubic feet = 10 CCF

1 MCF= 8 cords of wood

C

Cavity - The hollow excavated in trees by birds or other natural phenomena; used for roosting, food storage, and reproduction by many birds and mammals.

Ceded lands - Lands surrendered to the federal government by treaty.

CF (cubic foot) - The amount of timber equivalent to a piece of wood one foot by one foot by one foot.

Cord of firewood - a stack of wood 4 feet high by four feet wide by 8 feet long=1.28 CCF or 128 cubic feet -- which includes the air space between pieces of wood.

Creel - A wicker basket used by anglers to carry fish.

Cultural resource – Also Heritage Resource the remains of sites, structures, or objects used by humans in the past-historic or prehistoric.



Cumulative effects - Those effects on the environment that result from the incremental effect of the action when added to the past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other action. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

D

Diameter at breast height (d.b.h.) - The diameter of a tree measured 4 feet 6 inches above the ground.

Dispersed recreation - A general term referring to recreation use outside developed recreation sites; this includes activities such as scenic driving, hiking, backpacking, hunting, fishing, snowmobiling, horseback riding, cross-country skiing, and recreation in primitive environments.

E

Endangered species - Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as endangered in accordance with the 1973 Endangered Species Act.

F

Forage - All browse and nonwoody plants that are available to livestock or game animals and used for grazing or harvested for feeding.

Fringed pinesap - A sensitive plant species.

K

Knutson-Vandenberg (K-V) - Legislation authorizing the collection of money from timber sales receipts for reforestation, stand improvement or mitigation projects on timber sale areas.

M

Management Area - Provides direction and practices for specific portions of the Forest. Each Management Area identifies a goal, or management emphasis, and the desired future condition of the land. Each MAC includes one or more Management Prescriptions.

Management indicator species - A species selected because its welfare is presumed to be an indicator of the welfare of other species using the same habitat. A species whose condition can be used to assess the impacts of management actions on a particular area.

Mass movement - A general term for any of the variety of processes by which large masses of earth material are moved downslope by gravitational forces - either slowly or quickly.

Meaningful Measures - A recreation management process to better guide recreation management activities at the project and site level intended to provide quality service to recreation visitors. It includes standards of quality, as well as prioritization for work to be accomplished based on documented expectations, needs, visitor preference and resource condition. Examples of standards for trail maintenance include: trees removed, tread maintained and brush cleared to predetermined widths.

MMBF - Million board feet

MMCF - Million cubic feet

MRVDs (Thousand recreation visitor days) - A measure of recreation use, in which one RVD equals twelve visitor hours, which may be aggregated continuously, intermittently, or simultaneously by one or more persons.

N

National Environmental Policy Act of 1969 (NEPA) - An Act to declare a National policy which will encourage productive and enjoyable harmony between humankind and the environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, to enrich the understanding of the ecological systems and natural resources important to the nation, and to establish a Council on Environmental Quality. (The Principle Laws Relating to Forest Service Activities, Agriculture Handbook No. 453, USDA, Forest Service, 359 pp.)

Northwest Forest Plan (NWFP) - An amendment to westside Forest Plans intended to ensure viability of the spotted owl and other late-successional dependent species, and maintenance and restoration of healthy riparian ecosystems.



O

Optimal Cover - For elk, cover used to hide from predators and avoid disturbances, including humans. It consists of a forest stand with four layers and an overstory canopy that can intercept and hold a substantial amount of snow, yet has dispersed, small openings. It is generally achieved when the dominant trees average 21 inches diameter at breast height or greater and have 70 percent or greater crown closure.

ORV - Off Road Vehicle. A category of recreational vehicles that includes four-wheel-drive vehicles and trail bikes.

Owl Region - National Forests and BLM districts within the range of the northern spotted owl.

P

Partial Retention - Management activities remain visually subordinate to the characteristic landscape.

PC (Precommercial) thinning - The practice of removing some of the trees less than marketable size from a stand so that the remaining trees will grow faster.

R

Raptor - Predatory birds, such as falcons, hawks, eagles, and owls.

Redd - Depressions in gravel in streams where salmon, steelhead, and trout lay their eggs.

Riparian - Pertaining to areas of land directly influenced by water. Riparian areas usually have visible vegetative or physical characteristics reflecting this water influence. Streamsides, lake borders, or marshes are typical riparian areas.

S

Selection - The annual or periodic removal of trees (particularly mature trees), individually or in small groups, from an uneven-aged forest, to realize the yield and establish a new crop of irregular constitution.

Semi-primitive motorized - A classification of the Recreation Opportunity Spectrum, characterized by a predominantly unmodified natural environment in a location that provides good to moderate isolation from sights and sounds of people, except for those facilities/travel routes sufficient to support motorized recreational travel

opportunities which present at least moderate challenge, risk, and a high degree of skill testing.

Semi-primitive non-motorized - A classification of the Recreation Opportunity Spectrum, characterized by a predominately unmodified natural environment of a size and location that provides a good to moderate opportunity for isolation from sights and sounds of people. The area is large enough to permit overnight foot travel within the area, and presents opportunity for interaction with the natural environment with moderate challenge, risk, and use of a high degree of outdoor skills.

Sensitive species - Plant or animal species that are susceptible or vulnerable to activity impacts or habitat alterations. Those species that have appeared in the Federal Register as proposed for classification or are under consideration for official listing as endangered or threatened species, that are on an official State list, or that are recognized by the Regional Forester as needing special management to prevent placement on Federal or State lists.

Seral - Transitory stage in an ecological succession.

Shelterwood - A regeneration method under an even-aged silvicultural system. A portion of the mature stand is retained as a source of seed and/or protection during the period of regeneration. The mature stand is removed in two or more cuttings.

Silviculture - The art and science of controlling the establishment, composition, and growth of forests.

Snag - A standing dead tree.

Soil productivity - The capacity of a soil to produce a specific crop such as fiber or forage under defined levels of management. Productivity is generally dependent on available soil moisture and nutrients, and length of growing season.

Special Interest Areas - Areas managed to make recreation opportunities available for the understanding of the earth and its geological, historical, archeological, botanical, and memorial features.

T

TE&S - Threatened, endangered and sensitive species.

Threshold of Concern - Degree of departure from a standard and guideline that would trigger an analysis to determine if a change in practices or plan adjustment is needed.

Threatened species - Those plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future. (See also Endangered species.)

Gifford Pinchot National Forest Administrative Units

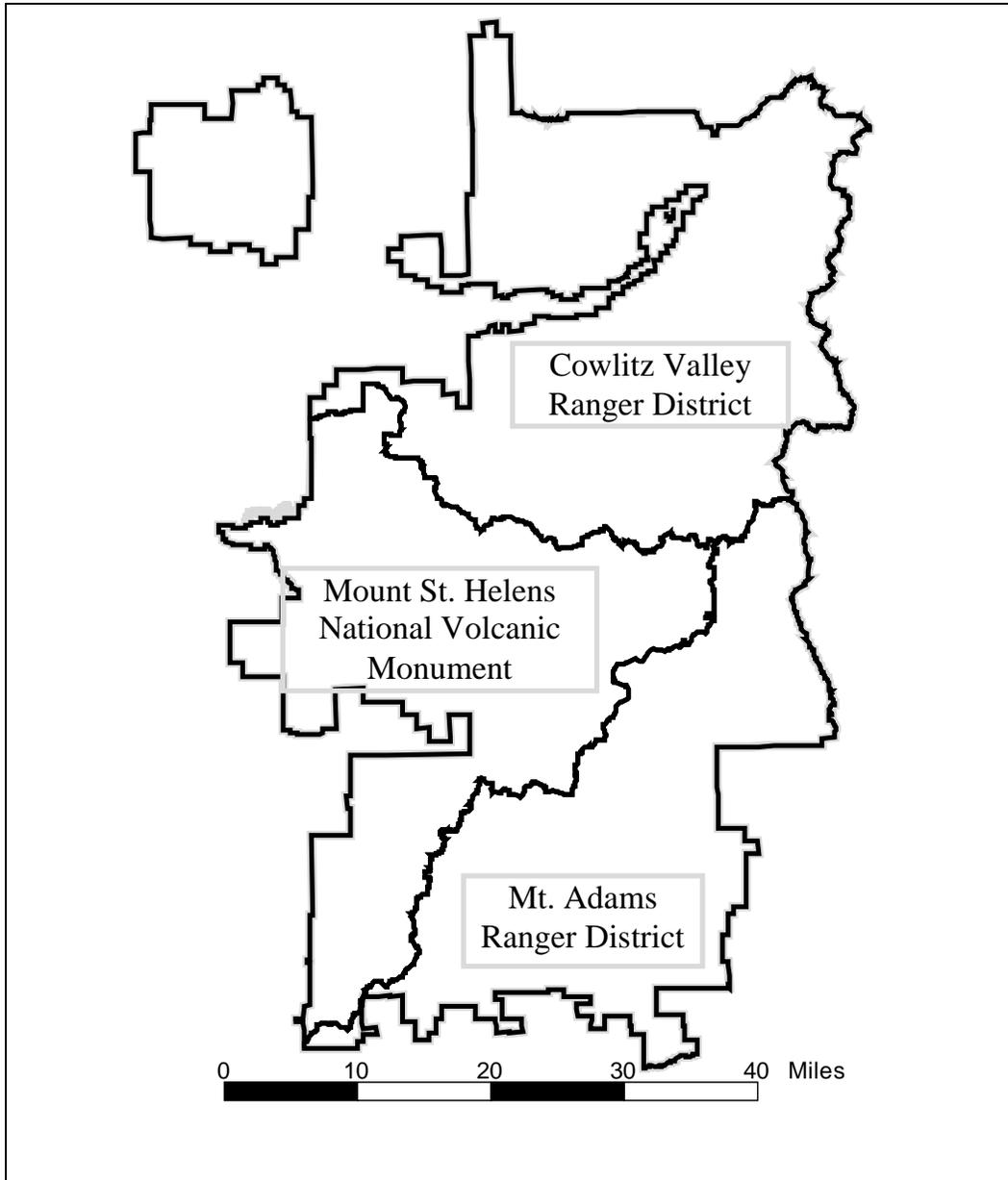


Figure 2 - Administrative Units

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