USDA

United States
Department of
Agriculture

Forest
Service

July 2008

Environmental Assessment

Clear Creek Roads Project

Muddy River, Upper Lewis River, and White Salmon River Watersheds

Mount St. Helens National Volcanic Monument and Mt. Adams Ranger District, Gifford Pinchot National Forest

Skamania County, Washington

T. 7N, R. 6E, Sections 1, 2, 12-14, 23, 24; T. 7N R. 7E, Sections 5-7, 29; T. 8N, R. 6E, Sections 13, 24, 34-36; T. 8N, R. 7E, Sections 5, 8-10, 17-19, 32; T. 9N, R. 7E, Sections 21, 32; T. 7N, R. 9E, Section 35

For Information Contact: Erin Black
2455 Highway 141, Trout Lake, WA 98650
509-395-3411
http://www.fs.fed.us/gpnf/04projects/

Table of Contents

SUMMARY

The Mount St. Helens National Volcanic Monument and the Mt. Adams Ranger District on the Gifford Pinchot National Forest proposes to close or decommission approximately 21 miles of system and user-created roads within the Muddy River, Upper Lewis River, and White Salmon River fifth-field watersheds.

This action is needed, because the presence of these roads has the potential to negatively impact aquatic and wildlife habitat. Hillslope runoff and sediment transport can be unnaturally increased to streams and rivers from roads, which impacts aquatic and riparian habitat and watershed health. Additionally, roads into sensitive riparian areas allow easy access for the public to erode soil, disturb riparian vegetation, deposit garbage at unsanctioned, dispersed campsites, and degrade bull trout habitat. Finally, unauthorized, user-created roads have been built and do not meet road specification standards and because of this are causing increased degradation to riparian habitat.

The proposed action is expected to have long-term beneficial effects on water quality and fish and wildlife habitat. Project activities may cause short-term effects to bull trout habitat from pulses of sediment during project implementation. Closing or decommissioning roads may also displace recreationists wanting greater access to streams and/or dispersed camping.

Based upon the effects of the alternatives, the responsible officials will decide whether or not to close and decommission all or a portion of the proposed roads, defer action at this time, or conclude that significant impacts would result from the proposed action which would warrant the preparation of an environmental impact statement.

INTRODUCTION

Background

The creation of the USDA Forest Service's Pacific Northwest Region Aquatic Restoration Strategy (Strategy) in March 2005 resulted in a basin-wide approach to restoration activities. This Strategy uses a basin-scale restoration prioritization process to identify basins that area a "high" priority for restoration. Through this process, the Lower Columbia River Basin was identified as a high priority basin. The Gifford Pinchot National Forest (Forest) has several watersheds that contribute to the lower Columbia River basin, thus 3 priority watersheds were selected in conjunction with partners in an effort generate funding and mechanisms to address the Strategy. One of these top three watersheds is the upper Lewis River subbasin, which specifically includes the Muddy River watershed (USDA 2008).

In order to increase active restoration activities within the upper Lewis River subbasin, the Gifford Pinchot National Forest began development of the Clear Creek Roads Project in fiscal year 2007. The intent of this project was to execute the Gifford Pinchot National Forest Restoration Plan (USDA 2008) by analyzing and documenting the effects associated with road decommissions, road closure and stabilizations, and fish passage barrier culvert removals in the upper Lewis River subbasin. In an effort to improve efficiency for these types of project, one road outside of the Lewis River subbasin was included in this project to ensure all upcoming access management changes on the south-end of the Forest received the same level of analysis and scrutiny prior to implementation.

Project Scope and Development
Roads originally recommended for inclusion in the Clear Creek Roads Project came from a variety of sources including:

- The Gifford Pinchot National Forest Roads Analysis (USDA 2002).
- Gifford Pinchot National Forest Restoration Plan (USDA 2008).
- Clark-Skamania Flyfishers (2006).
- Oregon Grotto (Chapter) of the National Speleological Society (2006).

This original list of roads included a proposal for treatment of 21.6 miles of system road (13.3 miles of decommission and 8.3 miles of closure) and 1.6 miles of non-system or user-created roads. Since the Gifford Pinchot National Forest Roads Analysis recognized that "more thorough, site-specific project analysis of roads may arrive at different conclusions… or may propose various road management alternatives to address these and other issues (USDA 2002, p. 111)," a project-level roads analysis was completed to verify or change recommendations outlined in the 2002 Forest Roads Analysis and identify alternatives for addressing the issues associated with these roads.

The project-level roads analysis completed as part of this project was tiered to the Forest Roads Analysis, which was completed in 2002 as an update to the 1994 Access and Travel Management (ATM) Plan for Forest Roads. The Forest Roads Analysis provided road management

recommendations based on three major factors regarding roads: access needs, aquatic ecosystem risks, and terrestrial ecosystem risks. In consideration of the ratings for each of the three factors and, in some cases, the current road management, each road was then assigned a recommendation for future road management and a relative priority for road maintenance or other activity to address potential environmental impacts. The recommendations ranged from keeping a road open and maintained for passenger cars to decommissioning the road (removing it from the road system). These recommendations were not decisions. Instead, they were intended to help identify opportunities and priorities for road management during site-specific roads analysis for individual projects.

This project-level analysis was completed in April 2007 by members of an interdisciplinary team. This analysis was similar to the Forest Roads Analysis in that it included a review of access needs, aquatic ecosystem risks, and terrestrial ecosystem risks, but this project-level analysis differed in that it included analysis of some non-system roads, a more comprehensive review of internal databases, and actual site visits. Access needs were determined based on future needs for vegetation management (including input from internal departments such as silviculture, pre-sale, and the timber stand improvement (TSI)/stewardship coordinators), fire prevention and suppression, forest administration, recreation, and other public uses, and private easements and rights-of-way. This process specifically identified roads that would be needed by these resources in the next 5 to 20 years. Several roads access plantation stands and were identified as having commercial and precommercial thinning needs within the next 5 years. Stands needing commercial thinning in the next 5 years were included in the upcoming Wildcat Timber Sale, which is scheduled to be completed prior to implementation of these roads. Stands needing precommercial thinning were either determined to be accessible by walking in to the stands or work would scheduled to be completed prior to road decommission. No other concerns were identified.

Aquatic ecosystem risks were determined through field review based on water quality impacts of road surface erosion, stream-crossing culvert conditions, the potential for mass wasting related to road failure, stream channel processes and habitat conditions related to stream crossings and roads within Riparian Reserves, and fish passage barriers. Terrestrial ecosystem risks were based on the proximity to big game winter range, proximity of roads to special or unique habitats, and the proximity of roads to threatened and endangered or other protected wildlife species. Site visits were conducted to ensure the proposed action reflected the current road condition as well as the potential for needing the road in the future. The survey information collected during this analysis documented erosion problems on these roads. The final recommendation that resulted from the project-level roads analysis was documented in Appendix 1 and in some cases the “Notes” column indicates where erosion problems were found. This analysis was used to verify recommendations outlined in the Forest Roads Analysis or in some cases update the recommendations. For example, some roads recommended for closure were later found to have no need in the foreseeable future and were recommended for decommission. The final recommendations for this analysis can be found in Appendix 1.

Recommendations from the project level analysis were used to redefine the scope of the Clear Creek Roads Project. Some changes to the project scope occurred prior to release of the June 13,

2007 public scoping letter, but several were made after release of the scoping letter and during subsequent interdisciplinary team meetings.

Purpose and Need for Action

The purpose of this restoration project is both aquatic and terrestrial in nature. The aquatic purpose is to improve fish habitat for bull trout and to prepare for eventual re-establishment of anadromous fish in the Lewis River above Swift Reservoir dam. The terrestrial purpose is to improve wildlife habitat and reduce the introduction of noxious weeds and trash in the upper Lewis River subbasin and the White Salmon River watershed. Additionally, this project will reduce the financial burden sustained by the Forest Service for system roads that have not been properly maintained due to lack of funding. Some or these roads pose tremendous risk to aquatic habitat and are now in need or major repair rather than simple annual maintenance.

The presence of roads has the potential to negatively impact aquatic and wildlife habitat depending on location and road surface condition. Hillslope runoff and sediment transport can be unnaturally increased to streams and rivers from roads, which impacts aquatic and riparian habitat and watershed health. Additionally, roads into sensitive riparian areas allow easy access for the public to erode soil, disturb riparian vegetation, deposit garbage at unsanctioned, dispersed campsites, and degrade fish habitat. There is also a need to reduce road density in elk and deer winter range, and reduce unauthorized motorized use on user-created roads, which has resulted in the spread of noxious weeds and the accumulation of trash and resource damage at dispersed campsites.

There is a need to prevent vehicular access into the riparian areas adjacent to the Muddy River and Clear Creek. Historical use of official forest roads (system) and non-maintained roads (user-created or non-system) has resulted in safety issues and resource damage. For example, deep mud holes have been created on non-system roads extending off Forest Service Road 9039-350. Closure rather than decommission of this road is needed in order to maintain access to a long term USGS stream gaging station and some private land.

In addition, there is a need to reduce impacts that are currently occurring at Deadhorse Cave in the White Salmon River watershed on the Mt. Adams Ranger District due to dispersed camping occurring near the entrance. The large campsite near the upper entrance has resulted in trash and even campfire smoke making its way into the cave. The effects of introducing foreign materials can alter the cave ecosystem, impacting cave-adapted species that reside in the cave, some of which may be unique to Deadhorse Cave alone.

This project would reduce sub-basin road densities, which were found to be high in the Muddy River Watershed Analysis. This project would decommission roads in four out of the 11 high priority sub-basins and in five lower priority sub-basins identified in the Muddy River Watershed Analysis.

Proposed Action

The Clear Creek Roads Project proposes to treat a total of 20.8 miles of system road and 1.5 miles of user-created roads on the Gifford Pinchot National Forest in southwest Washington. Approximately 19.3 miles of road are proposed for decommission in this project, including 17.8 miles of system roads and 1.5 miles of non-system or user-created roads. The project would involve: removing culverts and recontouring stream banks, decompacting the roadbeds, and installing earth berms and/or boulders to block vehicle access. Disturbed areas would be seeded with native plant species, and weeds would be controlled. An additional 2 miles of system road are proposed for year-round closure in this project, including the installation of two gates to restrict vehicular traffic.

The complete description of the proposal is listed in the Alternative section as Alternative 2.

The proposed action being considered is consistent with the Gifford Pinchot National Forest Land and Resource Management Plan (LRMP), as amended by the Northwest Forest Plan. The activities of this project would control and prevent road-related sediment production, eliminate the risk of potential road failures, and restore riparian vegetation, all of which are important components of a watershed restoration program, according to the Aquatic Conservation Strategy of the Northwest Forest Plan.

Decision Framework

The responsible officials (Mount St. Helens Monument Manager and Mt. Adams District Ranger) will review the proposed action and the no action alternative to determine which best meets the purpose and need for action. When making the decision, the responsible officials will also take into consideration the issues that have been raised by the interdisciplinary team and from comments received from the public, other agencies, and tribes in response to this analysis.

The final decision would be to either:

- select the proposed action for implementation,
- defer action at this time, or
- conclude that significant impacts would result from the proposed action which would warrant the preparation of an environmental impact statement.

Public Involvement

The proposal was listed in the Schedule of Proposed Actions on July 1, 2007. The proposal was provided to the public and other agencies for comment during scoping starting on June 13, 2007. In addition, as part of the public involvement process, the agency circulated a news release on June 15, 2007. Ten letters or emails were received during the scoping period. Using the comments from the public and other agencies, the interdisciplinary team developed a list of issues to address.

A story was also published about the project in *The Columbian* on June 25, 2007 entitled, “Fund shortage may cause closure of forest roads” by Erik Robinson.

A legal notice was published in the *Columbian* newspaper, notifying all interested publics of the availability of the preliminary EA and the start of the 30-day comment period. A letter with this information was sent to the Forest mailing list The Forest received 4 comment letters or emails in response. Responses to each of the comments is included as part of Appendix 2.

Issues

The Forest Service separated the issues into two groups: significant and non-significant issues. Significant issues were defined as those directly or indirectly caused by implementing the proposed action. Non-significant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…"

The Forest Service identified two general topics raised during scoping. These significant issues include:

- Significant Issue #1: Decommissioning and/or closing the roads within the project area would limit access to the Forest for people unable to hike and bike.

- Significant Issue #2: Decommissioning and/or closing the roads within the project area would reduce recreational access to rivers.

- Significant Issue #3: Decommissioning and/or closing the roads within the project area would reduce acres of dispersed camping.

Discussion of these issues can be found in "Changes to the Proposed Action in Response to Significant Issus," as well as "Alternatives Dropped from Further Consideration" in the Alternatives section, and in the disclosure of the effects to Recreational Use in the Environmental Effects section. The proposed action has been designed to lessen any potential impacts from eliminating or reducing recreational access.

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for the Clear Creek Roads Project. It includes a description of each alternative and map of the proposed action. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

Alternatives

Alternative 1

No Action

Under the No Action alternative, current management plans would continue to guide management of the project area. No system or user-created roads would be closed or decommissioned. Surface flow would not be restored because no culverts would be removed, road surfaces would not be outsloped, nor would cross drains be created. Road surfaces would remain compacted. No berms would be put in place to reduce road use and roads would not be seeded, mulched or fertilized to enable vegetation establishment and to minimize erosion and sediment transport to streams. Water quality concerns would continue from existing sediment delivery from roads in the project area and wildlife harassment would continue due to vehicular disturbance in the project area.

Alternative 2

The Proposed Action

The Clear Creek Roads Project proposes to treat a total of 20.8 miles of system road and 1.5 miles of user-created roads on the Gifford Pinchot National Forest in southwest Washington. Approximately 19.3 miles of road are proposed for decommission in this project, including 17.8 miles of system roads and 1.5 miles of non-system or user-created roads.

Road decommissioning includes treating the road surface to restore hydrologic connectivity and function by employing one or more of the following design features:

- Restore natural surface flow by removing all culverts, outsloping road surface, and creating cross drains;
- Decompaction of road surface to allow infiltration;
- Block vehicular access by constructing a berm to reduce road use and enable vegetation establishment; and,
- Seed, mulch, and fertilize to enable vegetation establishment and to minimize erosion and sediment transport to streams.

An additional 2 miles of system road are proposed for year-round closure in this project, including the installation of two gates to restrict vehicular traffic. These gates are intended to reduce road use, which will reduce the harassment to wildlife, reduce the introduction of garbage into riparian areas, and reduce sediment delivery to streams from under-maintained roads.

Forest Service Road 9039-350 would be closed with a gate year-round to prevent vehicular access into the riparian area adjacent to the Muddy River just upstream of the confluence with the Lewis River. This road and the surrounding accessible area have been used by recreational forest users in the past during the rainy season for “mud-bogging” activities, which has created deep mud holes on non-system roads extending off the 9039-350. Closure of this road is needed in order to allow limited access to these areas, since this road is necessary for access to a long term USGS stream gaging station and some private land. Closure with a year-round gate will allow for the area to remain accessible, but only for authorized vehicular traffic.

Through this project, the access and maintenance of these roads will be changed to one of three levels of road management:

- Gated – Open to authorized vehicle travel only.
- Close & Stabilize – Closed to all vehicular travel, but could be reopened in the future.
- Decommission – Closed to all vehicular travel and not available for future use.

These roads, their locations, and the specific proposed action for each road are listed in the table below.

Table 1. Details of Proposed Action by Road Number

Road Number	Begin Mile Post	End Mile Post	Length (miles)	Proposed Action	Current Management[1]	Recommended Management[2]
Forest System Roads						
2500840	0.0	1.0	1.0	Decommission	CD	DE
2500846	0.0	0.2	0.2	Decommission	CD	DE
2500910	0.4	0.6	0.2	Decommission	OH	CS
2500970	0.0	0.5	0.5	Decommission	CD	CS
2559100	1.4	2.4	1.0	Decommission	SO	SO
2559103	0.0	0.7	0.7	Decommission	SO	DE
2573460	0.0	0.9	0.9	Decommission	OH	DE
2573464	0.0	0.3	0.3	Decommission	CN	CS
2575000	1.67	3.9	2.23	Decommission	OH	DE
2575050	0.0	0.5	0.5	Decommission	CN	DE
2575056	0.0	0.3	0.3	Decommission	CN	DE
2575200	0.0	0.9	0.9	Decommission	CN	DE
2586000	1.5	3.2	1.7	Decommission[3]	OH	SO
8800717	0.0	0.58	0.58	Decommission	CN	SO
9039250	0.0	0.4	0.4	Decommission	CD	None
9039350	0.0	0.3	0.3	Close with year-round gate	SO	SO
9039620	1.31	2.70	1.39	Close with year-round gate	CD	DE
9300150	0.0	3.6	3.6	Decommission	CD	DE

[1] Management levels found in the 1994 Gifford Pinchot National Forest Access and Travel Management Plan; CD = Closed with Device, CN = Closing Naturally, DE = Decommissioned, OH = Maintained for High-Clearance Vehicles, and SO = Seasonally Open.

[2] Recommended management levels found in 2002 Gifford Pinchot Roads Analysis; CS = Closed and stabilized, DE = Decommission, OH = Open to high-clearance vehicles, SO = Seasonally open, None = No recommendation given.

[3] FSR 2586000 would be decommissioned, but a footbed would be left in place for walk-in access.

9300151	0.0	0.4	0.4	Decommission	CD	DE
9300153	0.0	0.2	0.2	Decommission	CD	CS
9300154	0.0	0.2	0.2	Decommission	CD	DE
9300157	0.0	0.1	0.1	Decommission	CD	DE
9325080	0.0	0.6	0.6	Decommission	OH	DE
9325000	1.88	3.2	1.32	Decommission	OH	OH
Unauthorized User-Created Roads						
9300cb	0.0	0.15	0.15	Decommission	N/A	N/A
9300g	0.0	0.5	0.5	Decommission	N/A	N/A
9300picinic	0.0	0.62	0.62	Decommission	N/A	N/A

Changes to the Proposed Action in Response to Significant Issues

- During scoping, it was determined that Forest Service Road 2586 has been historically used as a walk-in hunting area. Instead of decommissioning this road completely and making it inaccessible, the proposal is to leave a footbed on the road for walk-in access.
- Forest Service recreational staff recommended leaving a parking spot at the top of user-created 9300g instead of eliminating all access on this road because it is a popular recreational location for dispersed camping. This parking spot would reduce safety hazards associated with vehicles parked on a road with heavy traffic (Forest Service Road 9300).
- The original proposal was to completely decommission Forest Service Road 2500910 which would have included 0.6 miles. It is proposed for decommissioning because of safety; it is a steep road in poor condition and there is no safe way to turn around. The proposal instead is to only decommission the last 0.2 miles where the turn-around is a safety issue and resource damage is occurring. Changing the proposed action in this way still allows for stream access and dispersed camping.
- In the original proposal, the currently existing gate at the beginning of Forest Service Road 9039620 would have been closed year-round, rather than the shorter seasonal-restriction that is currently in place to reduce harassment of deer and elk during the winter months. Since the first mile of this road provides numerous recreational camping opportunities, the proposed action was changed to closing only the last 1.4 miles of the road to allow for more access.
- Also, Forest Service Road 9325000 was originally proposed for closure starting at milepost 1.4 and was changed to milepost 1.9 to provide a recreational viewpoint yet still address resource concerns.
- In addition to the above changes, the proposed road decommissions are intended to specifically limit vehicular access, thus decommission designs will intentionally leave walk-in accessibility for human and/or animal use.

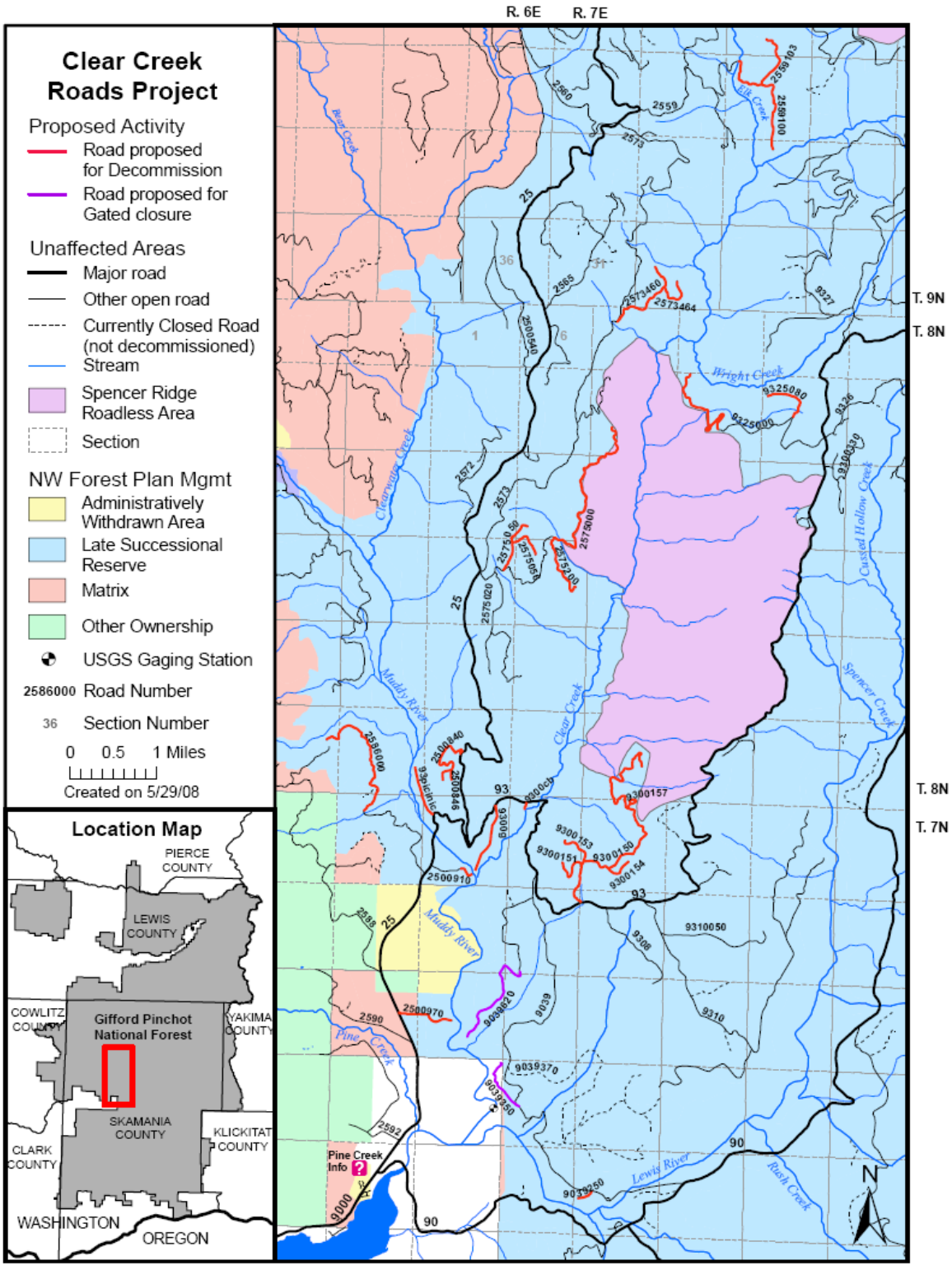

Figure 1. Location and Extent of Proposed Actions of the Clear Creek Roads Project within Mount St. Helens National Volcanic Monument.

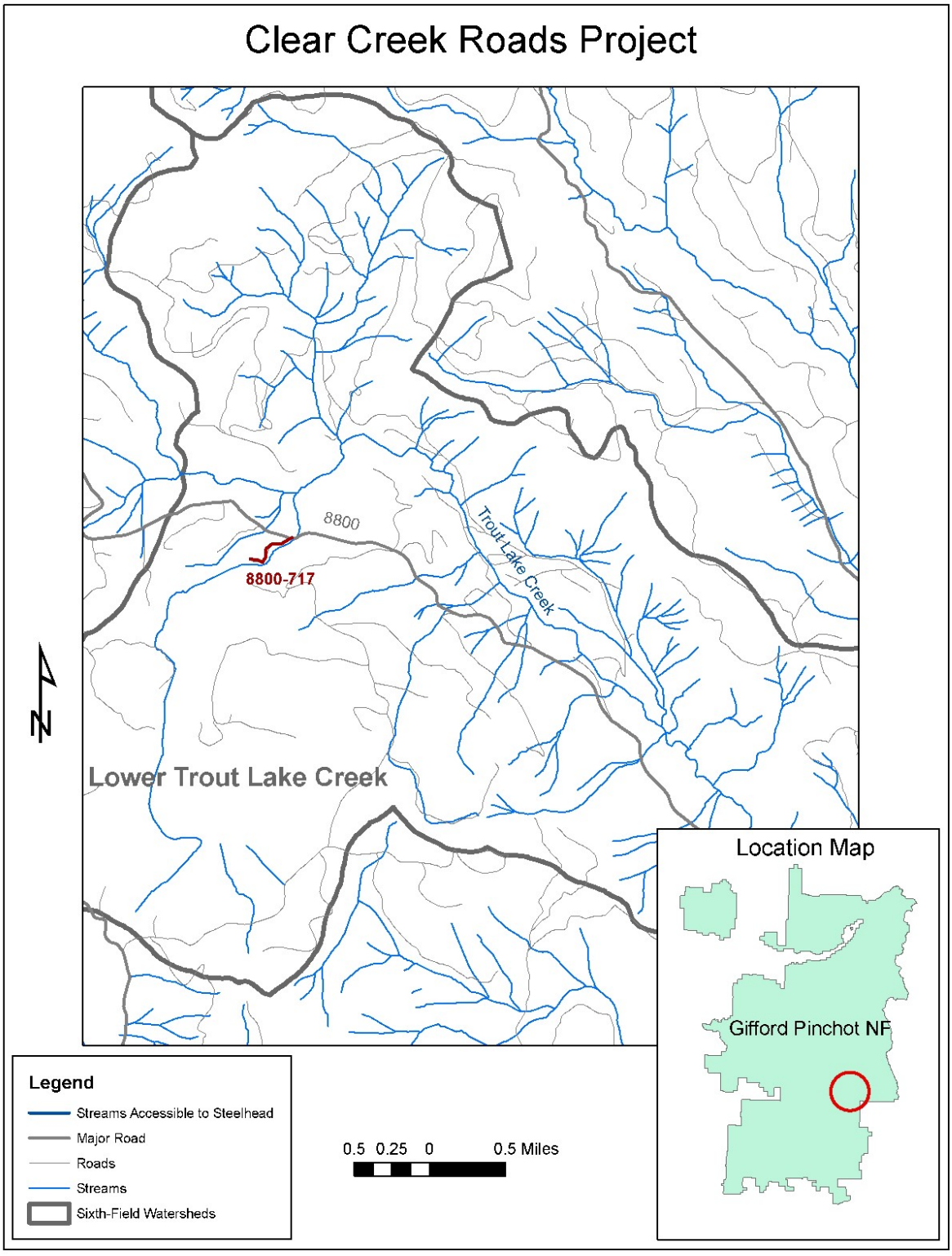

Figure 2. Location and Extent of Proposed Actions of the Clear Creek Roads Project within the Mount Adams Ranger District.

Design Criteria and Mitigation Measures

In response to public comments on the proposal, mitigation measures were developed to ease some of the potential short-term aquatic and wildlife impacts the proposed action may cause.

Road Decommissioning

A. General Design Criteria

1. Close roads by one of three methods: growing roadside vegetation, placing an earthen mound or other natural material at or near the road entrance, or installing a guardrail. Closure type will be determined case by case.
2. The walkable path would be left along the decommissioned road bed of Forest Service Road 2586 to allow easy access for forest users into this part of the Forest.
3. The decommissioning of the user-created road 9300g would begin approximately 25 feet off Forest Service Road 9300 to provide a small road-side parking area to reduce the safety hazards of parking vehicles on the shoulder of FR93.
4. For work on FSR 2575200, equipment can only be operated from the south side of the drainage and all fill material would be pulled to the south.
5. No ripping or scarification of the road surface would occur within 50 meters of all identified heritage resource sites. (Consultation with a Forest Service archeologist may be necessary to avoid heritage sites).

B. Aquatic Design Criteria/Mitigation

6. Work completed within stream channels will be limited to low flow periods and specific work windows for this area that are defined as follows:
    - Instream work on fish bearing streams will be limited to the work window designated for this area by Washington Department of Fish and Wildlife (WDFW), which is between July 1 and July 31.
    - Instream work on perennial non-fish bearing streams is only subject to the July 1-July 31 work window if they are located within ¼ mile of fish.
    - Instream work is permitted in intermittent channels between June 1 and October 1 preferably during minimal runoff periods. This work window may be waived for the month of October only, if low flow conditions exist due to a minimal fall precipitation. Conditions typically meriting a waiver are daily precipitation levels remaining below the average daily maximum precipitation for the June through September period (1.05 inches as measured at the Carson National Fish Hatchery).
7. Involve an experienced USFS fish biologist or hydrologist in the design and implementation of each project that is likely to adversely affect fish.
8. The project will comply with Washington State law (WAC 220-110-070) and project actions would follow all provisions and requirements of the Clean Water Act for maintenance of water quality standards as described by the Washington Department of Ecology and the provisions of the USDA Forest Service Memorandum of Understanding

with the Washington State Department of Fish and Wildlife (2005) to minimize effects to fish and other aquatic organisms.

9. A Pollution and Erosion Control Plan (PECP) would be developed and pre-approved prior to implementation of this project, which would include methods and measures to minimize erosion and sedimentation associated with the project, as well as a Spill Prevention Control and Containment Plan (SPCCP). The objective of this measure is to reduce the potential for damage to the stream and flood plain as a result of a hazardous material spill. The PECP would include all the elements as stated in the June 14th, 2007 USFWS Biological Opinion and letter of Concurrence USDA Forest Service, USDI Bureau of Land Management and the Coquille Indian Tribe for Programmatic Aquatic Restoration Activities in Oregon and Washington That Affect ESA-listed Fish, Wildlife, and Plant Species and their Critical Habitats. The PECP will specifically include appropriate operational measures for handling hazardous materials, as well as the following requirements:
    - Each piece of machinery to be checked for gas/oil/hydraulic fluid leaks before entering the worksite.
    - Each piece of heavy machinery will carry a spill-containment kit to limit the effects of any accidental spill.
    - A Hazardous Material kit will be on site, and would contain materials to control/contain a spill of fuel, oils, and/or hydraulic fluid. In addition, at a minimum, each piece of heavy machinery should have oil-sorbent pads or pillows on hand to handle small spills quickly.
    - All service work on heavy machinery and refueling will be done on an established system road at a site approved by the Forest Service.
    - Refuel power equipment or use absorbent pads for immobile equipment at least 150 feet from water bodies to prevent direct delivery of contaminants into streams, or as far as possible from streams where local site conditions do not allow a 150-foot setback.
10. Design fill-removal activities to minimize sediment entering stream channels. The objective is to restore stream processes and floodplain access by removing all fill material on the valley floor. Excavate slopes to approximate the natural hillslope or to 1.5:1, where practical; do not encroach on natural slopes. Disturbed streambanks and decompacted sections of road would be re-vegetated where a moderate to high potential for surface erosion exists. Treat these areas with native seed and mulched with weed-free material to minimize erosion. Erosion control measures would at a minimum include a heavy application of mulch immediately after work is completed. Seeding may also occur and may be delayed until September when cooler, moister weather conditions would aid growth following seed germination. Seeding would be accomplished by the end of September. Because it can impede the establishment of natural vegetation and deplete soil of nitrogen, use straw as a last resort. Where feasible, restore the natural flood plain. Minimize disturbance of existing vegetation in ditches and at stream crossings adjacent to the road prism. Maximize activities during dry conditions (late summer and early fall).
11. Place material excavated from stream crossings and unstable side-cast road fills on stable areas at least 100 feet away from stream channels or active flood plains. Suitable areas—

to be determined by an engineer or other qualified personnel—include roadbeds adjacent to cutbanks, or on previously designated waste areas (if locally available). Remove any alder or conifer from the cut bank before placing excavated material, to enhance soil-to-soil contact and long-term soil stability. Contour waste piles to approximate 1.5:1 to 2:1 slopes and allow them to revegetate naturally. Seed piles with a mixture of native, certified weed-free species where a moderate to high potential exists for surface erosion, or where noxious weed infestation is likely.

12. In accordance with the June 14th Biological Opinion listed above, all reasonable and prudent measures to avoid or minimize incidental take of listed fish species (in this case, Columbia River bull trout) would be undertaken (i.e. all conservation measures and design criteria for this activity type would be followed.
13. Sites will be designed to minimize the potential to headcut below the natural stream gradient.
14. If the channel contains water at the beginning of implementation, the construction area would be isolated, dewatered, and any fish would be removed using the appropriate fish capture/handling/release guidelines listed in the Biological Opinion if fish are present at the beginning of implementation – Upon project completion, stream would be slowly re-watered to prevent loss of surface water downstream and downstream turbidity increases.
15. For stream-crossings that provide fish passage, restored stream crossings will meet the USFS Region 6 Guidance for Fish-Passage Structure Design:
    - Post-project channel characteristics would meet or exceed state requirements and guidance for fish passage.
    - All designs should provide passage for all species and life stages present at that location, unless there is a biological reason to separate or exclude populations.
    - Restored stream-crossings channel width should not constrict the stream or accelerate velocity at 2-year high flow (bank full width). Active channel width or bed width are also used in describing this dimension. Use the most appropriate measure that ensures that the stream is not constricted by the structure.
    - The natural stream gradient and substrate material would be simulated through the crossing.
    - Road sections to be decommissioned that are currently located on unstable soil and known landslides would receive road recontouring or outsloping to minimize post-treatment fillslope failures and sediment production into streams. Landslides are known to exist on extensive portions of Forest Service Roads 2559100, 2559103, 9300150, and on small portions of Forest Service Road 2586.
16. Where work necessitates the operation of heavy equipment within the bankfull width of stream crossings, the timing and extent of this work would be conducted to minimize negative impacts to fish by employing the following practices:
    - Instream work on fish bearing streams will be limited to work windows designated by WDFW (July 1 and July 31).
    - Accumulations of soil or debris shall be removed from drive mechanisms and undercarriage of all heavy equipment prior to its working within the bankfull width.

- Every effort would be made to avoid crossing streams with heavy equipment or operating such equipment within streams.
- Site disturbance would be kept to the smallest footprint practical.

17. Waterbars will be placed periodically, e.g. every 75-300 feet depending on road bed slope, along decommissioned road surfaces in between culvert removal locations to disperse any road runoff or subsurface drainage that enters the road bed from the road cut slopes.
18. Design water bars to facilitate proper drainage of surface water and to prevent ponding. Place water bars in areas where drainage will not destabilize road fills. This practice will minimize the erosive effects of water concentrated by road drainage features, disperse runoff from or through the road, minimize the sediment generated from the road, and minimize the possibility of roadbed and cut or fill slope failure and the subsequent delivery of sediment to streams.
19. Install water bars on both sides of excavated stream banks to prevent the existing road ditch flow to access the newly established stream banks and to route surface water away from newly excavated slopes.
20. Excavation of culvert removals will proceed in a manner designed to keep the culvert inlet in place for as long as possible and to keep existing embankment from eroding during embankment and culvert removal. This measure will minimize downstream sedimentation and restored channels to their natural grade, condition, and alignment as soon as possible.
21. Fish bearing stream crossings would be dewatered or isolated from flowing waters prior to removal of the culvert, to prevent generation of excessive sediment and minimize turbidity.
22. Large wood and/or appropriately sized rock, where available on-site, may be placed within the reestablished streambed to mimic the natural streambed characteristics and/or prevent erosion of the new streambed and banks. Brush and downed log cutting and/or removal necessary to access the work areas will be disposed of by scattering over the cut and fill slopes adjacent to the culvert removal work areas.
23. Control of invasive weeds would occur where deemed necessary, prior to and after earth disturbing activities.
24. Decompact surfaces of decommissioned roads to allow water to percolate through the soil and accelerate the recovery of woody vegetation. Although subsoiling is the preferred method, use ripping if subsoiling is not feasible or economical.
25. Riparian vegetation such as willow, alder, and cedar trees would be planted at crossings where bankfull width is 20 feet or wider to provide shade and future sources of large woody debris. Planting may be delayed until the following spring, to aid survival of the young trees.

C. Wildlife

26. Prohibit use of heavy equipment and other noise generating activity on Road 2575 and Road 2575-200 from April 1 to August 1.

27. Prohibit use of heavy equipment and other noise generating activity on Roads 2559-100 and 103, and Road 8800-717 from March 1 to June 30.
28. Seed decommissioned roadbeds and other disturbed areas with native seed to increase forage for wildlife and to reduce the potential for noxious weeds to spread.

Road Closure

A. Aquatic Design Criteria/Mitigations

1. Close roads by one of three methods: growing roadside vegetation, placing an earthen mound or other natural material at or near the road entrance, or installing a guardrail or gate. Closure type will be determined case by case.
2. Stabilize closed roads by reopening culvert inlets where necessary, repairing water bars, or building additional water bars. Build drain dips immediately above stream crossings, to ensure water is kept within stream channels when culvert inlets are obstructed. Harden drain dips with rock to minimize sedimentation of streams when culverts fail.
3. Design and place water bars based on specifications for decommissioned roads.
4. Excavate failing side-cast fill material at stream crossings and at other areas where material could enter streams. Focus on areas where downhill slopes adjacent to roads are greater than 60% and road fills are within 200 feet slope-distance of streams.

B. Wildlife Design Criteria/Mitigations

5. Prohibit use of heavy equipment and other noise generating activity on Road 9039-620 from April 1 to June 30 to protect deer and elk winter range.

Prevention Measures Common to All Activities

1. To prevent the introduction of noxious weeds into the project area, all heavy equipment, or other off- road equipment used in the project is to be cleaned to remove soil, seeds, vegetative matter or other debris that could contain seeds. Cleaning should be done before entering National Forest System lands, and when equipment moves from or between project sites or areas known to be infested into other areas, infested or otherwise. Cleaning of the equipment may include pressure washing. An inspection would be required to ensure that equipment is clean before work can begin.
2. Use weed-free straw and mulch for all projects, conducted or authorized by the Forest Service, on National Forest System lands. If State-certified straw and/or mulch is not available, individual Forests should require sources certified to be weed free using the North American Weed Fee Forage Program standards or a similar certification process. Mulch species shall preferably be from native seed sources or annual rye or cereal grain fields. Local contacts for weed free straw can be found in the project file.
3. Inspect active gravel, fill, sand stockpiles, quarry sites, and borrow material for invasive plants before use and transport. Treat or require treatment of infested sources before any use of pit material. Use only gravel, fill, sand, and rock that are judged to be weed free by District or Forest weed specialists.

4. Native plant materials are the first choice in revegetation for restoration and rehabilitation where timely natural regeneration of the native plant community is not likely to occur. Non-native, non-invasive plant species may be used in any of the following situations: 1) when needed in emergency conditions to protect basic resource values (e.g., soil stability, water quality and to help prevent the establishment of invasive species), 2) as an interim, non-persistent measure designed to aid in the re-establishment of native plants, 3) if native plant materials are not available, or 4) in permanently altered plant communities. Under no circumstances will non-native invasive plant species be used for revegetation.. When seed is used it should be either certified noxious weed free or from Forest Service native seed supplies.

Alternatives Considered but Eliminated from Detailed Study

Allowing for More Recreational Access/ Dispersed Camping
Based on the significant issues identified, the team considered analyzing an alternative that allowed for more recreational access and had less impact on dispersed camping. The team discussed individual roads that could receive a different treatment and determined that only a few roads or portions of roads were identified that could be altered in the proposed action to allow for more recreational access and still meet the purpose and need for resource protection. The specific changes to the proposed action included:

- Leaving ½ mile of Forest Service Road 9300150 open for dispersed camping;
- Leaving ¼ mile of user-created road 9300picnic open for a camping/ parking area.
- Several other options that were eventually included in the proposed action (see the section on "Changes to the Proposed Action in Response to Significant Issue #1" above).

After much consideration, the responsible officials felt that many concessions were incorporated into the proposed action that allowed for more dispersed camping and recreational access and that leaving portions of Forest Service Road 9300150 and user-created road 9300picnic would not meet the intent of the restoration project.

Decommissioning Forest Road 9327
During the scoping period, one individual suggested decommissioning Forest Road 9327 and all adjoining spur roads. This road was not carried forward either in the proposed action or as a separate alternative because of its location; it is in a different subwatershed and was not surveyed with the rest of the roads included in the proposed action. This road may be included in future road decommissioning efforts. There is one road included that is also in another subwatershed (Forest Service Road 8800-717); however, that is a road that had existing survey data complete and is in immediate need of closure so an early decision was made to include it in this analysis.

ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above. Included is a discussion of direct, indirect and cumulative effects of the proposed actions. Table 2 lists the projects that overlapped in space and time and were therefore considered in the cumulative effects analysis.

Table 2. Past, Present, and Reasonably Foreseeable Future Activities Considered in the Cumulative Effects Analysis

Project Name	Project Description and Scale	Resource Areas Potentially Affected
Upper Lewis River Fish Passage Project	• Replace culvert on FSR 8322 for fish passage	Hydrology/Fisheries
Muddy River Road Decommission Project	• Decommission 2.8 miles of FSR 8322700	Hydrology/Fisheries
Road maintenance on flood-damaged roads (funded by Emergency Relief for Federally-Owned Roads Program)	• Replace culverts on FSR 4205 MP 4.2 • Resurface, replace culvert and decommission FSR 8123 MP 1.4 • Install new drainage structures and replace culvert on FSR 8312 MP 1.0 • Heavy maintenance on FSR 90 MP 19.2 • FSR 93 MP 16. • FSR 53 MP 1.0 • FSR 26 MP 9.3 • FSR 26 MP 14.3 (work scheduled for summer 2008 and summer 2009)	• Hydrology/Soils; Fisheries • Road decommission (FSR 8123): Hydrology/Soils; Fisheries; Wildlife; Social Impacts/Recreation
Road Maintenance/Culvert Replacements (funded by Legacy Roads Program)	• Culvert and associated road maintenance on FSR 9039 • Culvert replacement on FSR 4200 (work scheduled for summer 2009)	Hydrology/Soils; Fisheries
Increased Recreation	There has been an increase in off-road vehicle use, mountain biking, horseback riding and other recreation on the Gifford Pinchot National Forest.	Social Impacts/Recreation

Routine Road Maintenance	General road maintenance is expected Forest-wide based on funding	Fisheries, Hydrology/Soils
Wildcat Timber Sale	• Plantation thin 3,000 acres in the Muddy River Watershed • Construct temporary roads (still in the planning phase)	Hydrology/Soils; Fisheries; Wildlife

Hydrology/Soils

Existing Condition and Environmental Effects

Introduction

The Clear Creek Roads Project is proposed in the three watersheds of the Gifford Pinchot National Forest, which is located in the western Cascades of southern Washington. All three of the Muddy River, Upper Lewis River, and White Salmon River watersheds drain eventually into the Columbia River. Table 2 summarizes the distribution of proposed road treatments by watershed and subwatershed.

Table 3. Distribution of proposed treatments of the Clear Creek Roads Project by watershed and subwatershed.

Watershed Name	Subwatershed Name	System Roads		Non-system Roads
		Length of road to be *Decommissioned* (miles)	Length of road to be *Closed by gate* (miles)	Length of road to be *Decommissioned* (miles)
Muddy River	Elk Creek	2.7	0	0.0
	Clear Creek	10.4	0	0.9
	Muddy River	3.8	2.0	0.6
Upper Lewis River	Little Creek	0.4	0	0
White Salmon River	Lower Trout Lake Creek	0.6	0	0
	Total Length	**17.8**	**2.0**	**1.5**

The Muddy River watershed was identified as one of the five high priority watersheds for aquatic restoration as a result of the 2002 Gifford Pinchot National Forest Aquatic Health Assessment (Draft GPNF Restoration Plan, 2008). This watershed supplies habitat to bull trout, and the restoration activities proposed included culvert removals, road decommissions, and road closures.

This project has the potential to affect the following primary hydrologic and soil indicators:

- Flow Patterns
- Erosion and Sediment Delivery to Streams
- Soil Productivity & Road Density
- Water Temperature
- Riparian Habitat

Each of these indicators were analyzed for the current condition and the effects related to each proposed alternative.

Flow Patterns

Existing Condition

Road stream crossings and road ditches are an unnatural disturbance in a stream system's natural drainage pattern. Roads stream crossings hinder natural drainage patterns, including hydrologic and sediment transport. Additionally, roads can increase the total volume of water available for rapid transport to stream channels. Roads intercept precipitation, which results in overland flow, over-compacted surfaces which reduce infiltration rates. Secondly, shallow subsurface flow may be intercepted at road cut-banks and converted to rapid surface runoff. This process effectively increases drainage density in a watershed, which can indicate increased peak flows (Wemple et al., 1996; WFPB 1997).

Wemple et al. proposed that roads modify drainage density by extending the total length of effective surface flow; in other words, extending the stream channel network. Where roads cross streams, they route the captured water flows to streams. In other words the roads act as extensions of the stream channels. This has two effects. First, it decreases the time it takes water to reach streams and increases peak flows. Second, water captured by the road's surface and ditches sometimes carries fine grained sediments to the streams, and increases the amount of fine grained sediments in the streams.

Direct and Indirect Effects

No Action (Alternative 1)

The effects of roads on streams and water drainage patterns would remain unchanged as long as roads are maintained for vehicle access. Some road sections would continue to cause drainage patterns to persist outside of their natural range resulting in the continued hindrance of streams geomorphologic processes.

Proposed Action (Alternative 2)

Decommissioning roads would promote the establishment of natural hillslope drainage and maintenance of stream channel features, such as channel gradients, width to depth ratios, and substrate type. Pulling back the fillslope or embankment will partially reestablish the angle of repose of the land surface further allowing the natural drainage patterns to occur. The comparison of these effects by alternatives was not reasonable due to the lack of measurement precision. Approximately 33 perennial stream crossings (Table 3) and at least 12 intermittent stream crossings will be restored through the proposed road decommission activities. Restoration of these crossings will allow for more natural drainage patterns and decrease the likelihood of road failure. Road closure and stabilization may include road or ditch reconstruction in order to prevent road failure. Such reconstruction could increase runoff into streams above current levels.

Cumulative Effects

Several projects have the potential to decrease drainage network density and restore hydrologic flow patterns within the project area. Road decommissioning activities are the primary actions expected to effect flow patterns by removing road-stream crossings. Only two additional road decommission projects are proposed for the Muddy River watershed at this time (1.5 miles of FSR 8322700; and FSR 8123 which is already effectively closed from storm damage). Although other road maintenance activities would further reduce drainage network extension, the relative effects of such activities would be minimal. Continued management within matrix and other lands of this project area are not expected to further increase the road system length or generate any new road-stream crossings. The Wildcat timber sale activities will likely construct temporary roads to access landings and thinning units, but long-term flow patterns will not change due to temporary roads since these roads will be removed after use. Any temporary roads constructed for logging that are not decommissioned prior to the wet season would have stream crossings removed and be weatherproofed through the construction of waterbars, crossdrains and grade breaks. This will ensure that surface waters do not concentrate on the temporary road surface and contribute directly to increases in drainage network density.

Table 4. The number and location of perennial stream crossings that will be restored through decommissioning activities in the Clear Creek Roads Project.

Forest Road Number	Number of Culverts to be removed on Perennial Stream Crossings	Location (Mile Post) of Perennial Stream Crossings
2500840	0	
2500846	0	
2500910	0	
2500970	0	
2559100	6	0.1, 0.3, 0.9, 1.4, 2.1, 2.4
2559103	4	0.3, 0.35, 0.4, 0.6
2573460	6	0.2, 0.25, 0.5, 0.7, 0.8, 1.0
2573464	0	
2575000	6	2.8, 2.9, 3.0, 3.1, 3.4, 3.5
2575050	1	0.4
2575056	0	
2575200	0	
2586000	6	1.5, 2.1, 2.2, 2.3, 2.6, 3.0
8800717	0	
9039250	0	
9300150	3	1.4, 1.65, 3.05
9300151	0	
9300153	0	

9300154	0	
9300157	0	
9325000	1	2.76
9325080	1	0.1

Erosion and Sediment Delivery to Streams

Existing Condition

Of the various surface erosion processes at work in this area, sediment delivery via roads is the most prevalent in this Forest (USDA 2002). Principal mechanisms for sediment delivery to streams from roads in the analysis area are surface gravel from exposed cut-and fill-slopes, side-cast and fill-slope failures, and undermining of roadbeds due to gully erosion associated with insufficient drainage. Additionally, a lack of road maintenance has increased the risk of culvert failure, which could provide additional sediment delivery to streams. Unlike the composition of landslide sediments, finer materials including sand and silts are believed to dominate the largest fraction of sediments delivered via roads to stream channels. Most fines are transported from roads to streams during storms that mobilize fine sediments from the road surface. Road drainage is typically delivered to streams through roadside ditches and culvert outlets.

Direct and Indirect Effects

No Action (Alternative 1)

Depending on slope position and proximity to streams, active roads can be chronic sources of fine sediment (Reid, 1981; Reid and Dunne 1984; Bilby, et. al. 1989). Roads that cross or run adjacent to streams are of particular concern due to direct access to streams through the ditch line or short slope distances to adjacent streams. Fine sediment may enter streams and increase turbidity, which affects water quality for water users such as humans or aquatic biota. Additionally, roads that cross unstable soils and known landslide areas are at the highest risk for washout. When road-stream crossings and, in some cases, side-cast material sites fail, road fill material enters stream channels and cause an immediate increase of fine sediment and turbidity. This additional material can also become a chronic source of fine sediment. If road-stream crossings are not removed or properly maintained, the risk of culvert failure could increase due to sedimentation and a reduction in capacity. Road-stream crossings also affect the sediment regime for stream channels, preventing or limiting the distribution of large wood and larger sediments. The No Action Alternative would maintain these effects from roads that continue to be open.

Proposed Action (Alternative 2)

Under the proposed action, roads that are decommissioned would nearly eliminate the long-term production of fine sediment, which would protect downstream water quality and water users. In addition, stabilizing closed roads is expected to reduce the potential for sediment delivery to streams reducing erosion potential of the road prism, and closing roads with gates is expected to reduce sediment delivery to streams by reducing road use.

Decommissioning roads effectively eliminates them as chronic sources of fine sediment, which originates from road surfaces, road-stream crossings, and side-cast material sites. Road decommissioning would eliminate sediment production in streams related to roads and road-side

ditches. Road decommissioning reduces sediment delivery by improving infiltration through decompaction, reducing overland runoff in ditches by filling in ditches and outsloping road surfaces, and reducing road washouts by restoring hydrologic connectivity at road-stream crossings. These crossings would be restored by removing culverts that would otherwise restrict water passage and increase the risk of road failure. Excavation is used to remove culverts and restore the natural stream gradient, and this excavation would be the primary sediment producing activity in the road decommissioning activities.

Road decommissioning would produce minor amounts of fine sediment during project implementation and during the first substantial runoff event. Subsequent runoff events would contribute less sediment production over time but are expected to last up to one year later or until vegetation is established on bare-soil areas adjacent to streams. Design criteria and Best Management Practices (from the Gifford Pinchot National Forest Land and Resource Management Plan) would be used to minimize the amount of fine sediment entering stream channels while work is in progress and after the work is completed, including promoting vegetation establishment through seeding.

Decommissioning these roads would reduce the risk of future landslides and road failures. Under the proposed action, decommissioning would occur on 1.0 miles of road located on landslides and 7.0 miles of road located on potentially unstable soils (Table 4). These roads pose a high risk for road failure. Landslides are known to exist on extensive portions of Forest Service Road 2559100 and Forest Service Road 2559103 in the Elk Creek subwatershed, a section of Forest Service Road 9300150 in the Clear Creek subwatershed, and small portions of Forest Service Road 2586 in the Muddy River subwatershed. The risk of road failure would be eliminated by decommissioning roads in unstable terrain and by using project design criteria in these decommission activities. Roads that are located on landslides and unstable road beds will receive road outsloping or recontouring to minimize post-treatment fillslope failures and sediment production into streams.

Table 5. Length of system road in this project that crosses potentially or known unstable soils.

Watershed Name (5th-field)	Subwatershed Name	Total length of system road to be decommissioned (miles)	Length of system road to be decommissioned by soil stability (miles)		
			Roads with no soil hazards	Roads in potentially unstable soil areas	Roads crossing known landslides
Muddy River	Elk Creek	2.7	0.9	1.0	0.8
	Clear Creek	10.4	5.6	4.6	0.2
	Muddy River	3.8	2.3	1.4	0.1
White Salmon River	Lower Trout Lake Creek	0.6	0.6	0	0
Upper Lewis River	Little Creek	0.4	0.4	0	0
	Total Length	**17.8**	**9.8**	**7.0**	**1.0**

The amount of sediment delivered to streams is expected to be significantly less than would occur if the roads were left under current maintenance. Cook and Dresser found that stream-crossings that were restored through decommissioning delivered only 3 to 5 percent of the amount of fill material at that was originally located at that crossing (2004). Since the restoration of road-stream crossings prior to road failure would produce far less sediment to streams, the action alternative is expected to produce less sediment to streams over the long-term in comparison to the No Action alternative. Additionally, stream channels that currently cross roads have an altered sediment regime which would be restored through this alternative, allowing for the natural distribution of large wood and larger sediments.

Cumulative Effects

The effects of the proposed action would be cumulative with other forms of sediment production and introduction in the project area. General forest road use and maintenance contribute sediment to the river system, along with road failures that result from under-designed or under-maintained stream crossings. Road uses from other projects including the upcoming Wildcat Timber Sale will contribute additional sediment to the stream network. Some additional road decommissioning is expected to occur in the Muddy River watershed (1.5 miles of FSR 8322700 and FSR 8123), and this work is expected to generate additional short-term increases in stream sediment through stream-crossing restoration activities. Some additional work may be completed in regards to stream-crossing improvements, such as those proposed in the Fish Passage culvert upgrade on Forest Service Road 8322. The cumulative effects for the Clear Creek Roads Project and these other projects will result in a trend toward restoring the long-term function and process of the aquatic ecosystem by improving hydrologic connectivity between streams and between riparian areas and by reducing the effects of roads on stream sediment production.

Soil Productivity & Road Density

Existing Condition

Past human activity on the Gifford Pinchot National Forest has resulted in the creation of roads where soil compaction and displacement (removal of topsoil) have altered soil productivity. Effectively, road construction is a long-term commitment of the soil to use as a road. Returning soil to its original productivity after use as a road is a chemical, physical, biologic, and geologic process that can take hundreds of years. Soil productivity begins to return after road closure to vehicle travel, allowing some vegetation to grow within a year.

Typically, soils in this area are surfaced with crushed aggregate to facilitate winter use and compacted by heavy equipment. Soils that were once porous and easily penetrated by water are now susceptible to overland flow and surface erosion. Where topsoil has been removed or excessively compacted, only shrubs, alders, and undersized conifers will grow. Froehlich et al. (1985) and Wert and Thomas (1981) found slow rates of natural recovery of compacted soil restricted primarily to the top 6 inches. Wert and Thomas (1981) observed that heavy compaction persisted at the 8- and 10-inch depths.

Bulk density of soil is often used to characterize compaction. Froelich (1976) has reported that most productive soils in the Pacific Northwest are characterized by relatively low bulk densities, ranging from about 0.5 g/cm^3 to 0.9 g/cm^3, and as a result have high macroporosity, high

infiltration rates and low soil strength. Heilman (1981) found that the roots of Douglas-fir seedlings could no longer penetrate soil at about 1.8 g/cm^3. For reference, a road surfaced with igneous rock and then heavily compacted would exceed 2.0 g/cm^3. Pure, igneous rock would be about 2.65 g/cm^3.

Direct and Indirect Effects

No Action (Alternative 1)

Soil productivity would remain unchanged as long as roads are maintained for vehicle access. The potential for soil displacement from the road continues due to the potential for road-stream crossing and side-cast failures. No additional areas would be compacted.

Proposed Action (Alternative 2)

Soil productivity would gradually recover on decommissioned roads. Decommissioning roadbeds would not create any additional soil compaction and displacement because excavated soil would be limited to the previously compacted and disturbed roadbed. The potential for soil displacement of the road would be reduced because unstable side-cast material at stream crossings would be moved to a more stable location. Road closure activities are not expected to change current soil compaction and displacement conditions of affected roads. Reducing road density through decommissioning would reduce adverse effects on soil productivity. Alternative 2 will reduce road density in the affected subwatersheds by between 1 and 32 percent (Table 5), which would improve soil productivity most dramatically in the three affected subwatershed in the Muddy River watershed.

Table 6. Effects of decommissioning roads on road density in the Clear Creek Roads Project.

Watershed Name (6th-field)	Sub-watershed Area (sq. miles)	Length of Current Road system (miles)	Current Road Density (mi/mi2)	Length of system roads to be Decom-missioned (miles)	Post-treatment Road Density (mi/mi2)	Post-treatment Road Density Reduction (%)
Elk Creek	28.21	62.49	2.22	2.7	2.12	**4.3%**
Clear Creek	19.34	32.44	1.68	10.4	1.14	**32.0%**
Muddy River	24.42	43.31	1.77	3.8	1.62	**8.7%**
Lower Trout Lake Creek	25.48	55.58	2.18	0.6	2.16	**1.0%**
Little Creek	20.02	41.14	2.05	0.4	2.03	**1.0%**

Cumulative Effects

Some additional work may be completed by the Forest Service and other entities in the project area in regards to road decommissions, closures, and stream-crossing improvements. Only one additional road decommission project is proposed for the Muddy River watershed at this time (1.5 miles of Forest Service Road 8322700), but future road decommissioning activities are expected over the long term as a result of reduced road maintenance funding and recommendations made in the Gifford Pinchot Restoration Plan (USDA 2008). Additionally,

minimal road maintenance funding means that it is unlikely for any new permanent roads to be constructed in the project area, thus the soil productivity and road density would only be positively affected by any proposed road decommissions.

Water Temperature

Existing Condition

Several of the sixth field sub-watershed in the project area have at least one stream that appears on Washington State 303(d) List of "Polluted waters that require a TMDL" for increased summer stream temperatures. Listed streams include sections of the Muddy River, Clearwater and Clear Creeks, which drain into the Muddy River, the Lewis River, and Quartz Creek, which drains into the Lewis River within the Upper Lewis River watershed. Streams in the analysis area are not listed for any other parameter (DOE 2004). The Gifford Pinchot National Forest Restoration Plan details plans for improving water quality in the "Bull Trout Area," which includes the reaches designated as Category 5 waters for stream temperature in the Muddy River Watershed (USDA 2008). No Category 5 listed streams are located on Forest Service land in the White Salmon River watershed (DOE 2004)

The principal source of heat for small forest streams is solar energy striking the stream surface (Brown 1969). Conditions where effective shade is greater than 80 percent of complete shading should exhibit no increase in stream temperature (DEQ 1999). A surrogate for effective shade modeling was used to analyze the effects of this project on stream temperature.

Direct and Indirect Effects

No Action (Alternative 1)

The no-action alternative does not change the current effective shade during the summer, nor the recovery trajectory for the vegetation within ten meters of the stream center. Five perennial-stream crossings on five roads (Forest Service Roads 2575200, 2586, 9300150, 9325, and 9325080) would remain intact, preventing growth of shade producing vegetation within 10 meters of stream centers. Shade is provided by culverts and associated fills however, and effects to stream temperature are not measurable.

Proposed Action (Alternative 2)

Road decommissioning and closing roads to vehicular traffic have the potential to affect stream temperature in the long term by allowing the reestablishment of shade-producing vegetation in the stream-side riparian areas. Several roads proposed for decommission or closure in this project are located within 10 meters of the center of streams. Restoring these roads would enable the establishment and growth of stream-side vegetation that would contribute effective shade to reduce water temperature in an effort to improve water temperature in downstream 303(d) listed stream reaches. No roads proposed for treatment in the project cross any of the 303(d) listed streams in this area.

The three user-created roads in this project currently allow vehicular access to the stream edges just upstream of listed reaches. The 9300cb and 9300g user-created roads both lead down to the western bank of Clear Creek in the reach just upstream of the confluence with a 303(d) listed reach of the Muddy River. These roads currently allow vehicular access down to the Clear

Creek floodplain, where vehicular traffic has prevented the establishment and growth of shade-producing vegetation. The 9300picnic also provides vehicular access to streambanks of the Muddy River in a reach that is located to the east and immediately upstream of a 303(d) listed reach on the Muddy River. Vehicular traffic in these areas has increased sediment delivery to streams and compacted floodplain soils, which has prevented the establishment of shade-producing vegetation.

Gated road closures would also prevent vehicular access down to reaches of the Muddy River. Several trees fell on Forest Service Road 9039620 during the Floods of November 2006, which prevented vehicular traffic to the Muddy River during 2007. Although the proposed action in this project is to gate this road year round at approximately mile post 1.3, a gate would be necessary to block vehicular traffic once these trees are removed from the road surface.

Alternative 2 will contribute to the long term reduction of stream temperature by allowing the reestablishment of effective shade-producing vegetation along streambanks. Vegetation would take up to one year to colonize exposed slopes after these roads are decompacted, thus seeding will be used to establish vegetation as soon and possible and reduce erosion potential. Shading vegetation would take at least a few years (up to 20) to reach full shade recovery. In the interim, topography, shrubs (such as salmonberry) and growing trees would provide increasing amounts of shade. Road decommissioning is not expected to affect effective shade on smaller streams. Although road decommissioning allows shading vegetation to grow in the roadbed, the shade produced from these areas is not expected to measurably affect stream temperatures.

Cumulative Effects

The effects of this project on stream temperature are indicative of the cumulative effects that are expected to occur in the project area. Stream temperatures are higher in areas that have received more ground disturbing activities. Many streams within the project area are located on the outslopes of Mount St. Helens, which received a tremendous disturbance as a result of the 1980 volcanic eruption. These streams understandably have higher stream temperatures as a result of less stream-side vegetation, which is expected to recover over time.

In the mean time, the Forest Service is focused on improving water temperature issues on all Forest Service lands through restoration projects, while using Best Management Practices on all projects to ensure stream temperature is not adversely affected. The net result of all land management activities are expected to decrease or maintain stream temperature from the current condition throughout the project area. Restoration projects with different goals will each contribute to reduced stream temperature including projects that improve fish habitat, increase effective shade-producing vegetation in riparian areas, or decrease sediment delivery into streams.

Riparian Habitat

Existing Condition

Riparian habitat exists adjacent to streams along roads that cross streams. Some riparian habitat has been altered or eliminated during road construction and as a result of natural processes associated with floods. Riparian habitat removal resulted from vegetation removal and soil displacement. The road construction also changed water drainage patterns, which further altered

riparian habitat by capturing sub-surface flow along cut-banks, removing shade and allowing soil temperature increases to increase evapotranspiration, and the redirection of water out of riparian areas.

Direct and Indirect Effects

No Action (Alternative 1)

The effects of roads on riparian habitat would continue with the persistence of some alternations of riparian habitat due to changes in flow patterns and alterations to natural soil and shade conditions.

Proposed Action (Alternative 2)

Decommissioning 17.8 miles of system road and 1.5 miles of non-system road will allow for the reestablishment of riparian habitat by eliminating the existence of an unnatural disturbance (a road). The reestablishment of riparian habitat in a relatively undisturbed condition will allow for the long term population of plant, invertebrate and vertebrate riparian dependent species. Removing culverts and pulling back fillslopes on unstable soils will eliminate or alter riparian habitat that is present within the road way.

Cumulative Effects

Some additional work may be completed by the Forest Service and other entities that will affect riparian habitat. Any additional road decommission projects will result in similar effects to this project, generally characterized as the long-term development of populations of plant, invertebrate and vertebrate riparian-dependent species. Removing culverts and pulling back fillslopes on unstable soils will eliminate or alter riparian habitat that is present within the road way, which will improve connectivity of riparian habitat. Any foreseeable timber sale activities, including the upcoming Wildcat Stewardship Project, are also expected to affect riparian habitat, but these projects will likely be developed in part to improve riparian habitat by increasing the diversity of riparian plant species in an effort to improve the quality and condition of riparian habitat.

Fisheries

A fisheries biological evaluation was completed for this project that included a complete discussion of a pre-field review, field reconnaissance, existing condition and effects determinations for all Federally-listed and sensitive fish species within the project area. A summary of the biological evaluation is included here. The complete biological evaluation can be found in the project file.

Existing Condition

A field review of fish species and habitat presence was completed for the road closure and decommission project sites. Bull trout are the only fish species of concern present within the project area. Bull trout are under jurisdiction of United States Fish and Wildlife Service (USFWS). Fish distribution data is from Washington Dept. Fish and Wildlife (WDFW), Forest Service GIS information and local Forest Service fish biologists.

Streams adjacent to harvest units are both perennial and intermittent. Some perennial streams provide habitat for resident fish. Intermittent streams are normally dry in summer months and therefore do not provide habitat for fish year round. The following is a summary of fish distribution for streams in the planning area.

The Clear Creek system enters the Muddy River at river mile 4.7. Muddy River enters the mainstem Lewis at river mile 60.1. The Lewis River enters the Columbia River at river mile 85. No anadromous species currently use the Lewis River upstream of Merwin Dam because the dam eliminates migration of anadromous fish. Bull trout (*Salvelinus confluentus*) are present in the Lewis River Basin above Merwin Dam and downstream of Lower Falls. They can occasionally be found in the lower section of the Muddy River; however, the warm summer water temperatures found in the Muddy River are well outside of their preferred range. They have not been documented in Clear Creek, but there is potential habitat for them for 6.2 miles until an impassable barrier falls blocks upstream migration. Clear Creek also has warm summer water temperatures.

Trout Lake Creek enters the White Salmon River at river mile 25.5. No anadromous fish use Trout Lake Creek because Condit Dam on the White Salmon River eliminates migration of anadromous fish. Resident fish include: cutthroat trout (*Oncorhynchis clarki*); rainbow trout (*Oncorhynchis mykiss*); whitefish (*Prosononium williamsi*); and sculpin (*Cottus* spp.). Bull trout are not present in Trout Lake Creek.

Essential fish habitat (EFH) has been designated under the Magnuson-Stevens Act to protect waters and substrates necessary for Chinook, coho and pink salmon spawning, breeding, feeding, or growth to maturity (NOAA 1997). There is no pink salmon on Gifford Pinchot National Forest. EFH in the Lewis River basin includes all freshwater streams accessible to Chinook and coho. The geographic extent of EFH is specifically defined as all currently viable waters and most of the habitat historically accessible to Chinook and coho. In this case, the Lewis River basin (USGS hydrologic unit number 17080002) is identified as EFH for both Chinook and coho salmon. There is no EFH in Trout Lake Creek. However there is EFH for Chinook and coho above Merwin Dam. Salmon EFH excludes areas upstream of longstanding naturally impassible barriers (i.e., Lower Lewis Falls) and includes aquatic areas above all artificial barriers (i.e. Merwin Dam).

There is no designated critical habitat for bull trout on National Forest System lands.

Environmental Effects

A Forest Service fisheries biologist visited sites most likely to affect fish to determine possible impacts to fish and fish habitat during the summer of 2007.

Direct and Indirect Effects

No action (Alternative 1)

If the identified roads are not closed or decommissioned there would be no short-term effects from the project to fisheries, but in the long term, increased sediment from road and culvert failures would degrade fish habitat.

Proposed Action (Alternative 2)
Short-term increases in suspended sediments are expected during road decommissioning and culvert replacement removal and construction if water is present in tributaries during project implementation. Short-term increases in fine sediments in the tributaries of the project area are also expected following the first winter flush. Sediments would be dissipated in the mainstem of the Muddy and/or Lewis River and expected to be within background levels.

Fine sediments, even at relatively low levels, deposited on spawning areas during critical life cycle stages (fall and spring) can decrease survival of eggs or emerging fry. Sediments deposited over streambeds can also reduce the habitat available for spawning and for aquatic insect communities, which in turn influences the available food supply for larger aquatic organisms. The potential to deliver a short-term increase in sediment to streams with fish is higher with implementation of the proposed alternative than the no action alternative; however implementing the proposed alternative will have a long-term decrease in stream sedimentation.

The decommissioning of roads, particularly valley-bottom and mid-slope roads, would restore natural hydrologic processes, and reduce the risk of human-caused landslides. In other areas, roads block fish passage between tributaries and main-stem streams, and interfere with natural landslides that move upslope trees and debris into streams.

Beneficial effects to fisheries from closing these roads include: reduced stream sedimentation and reduced impacts to riparian vegetation from vehicles resulting in increased shade and cooler summer stream temperatures, increased supply of large woody material and delivery mechanisms to fish bearing streams, removal of at least one physical migration barrier, and reduction in overall resource damage from user-created roads.

Of the 27 restoration sites proposed, only Forest Service Road 2586000 is within the immediate range of potential bull trout presence. Resident fish have been observed at the outlet pool of this crossing. Very poor habitat exists above this crossing due to the 1996 floods. It is expected that in time upstream habitat would improve following the removal of this crossing.

Forest Service Road 2586000 is in the Muddy River 5th-field watershed. The nearest aquatic resource of concern to the project area are cool tributaries to the mainstem of the Muddy River. Bull trout were observed in select cool water locations throughout the Muddy River System prior to the 1980 eruption of Mt. St. Helens. Since then bull trout have only been observed in the Muddy River up to river mile 2.0 and previous surveys have not detected bull trout in the upper Muddy River system. Although bull trout have not been observed in the upper Muddy River system since the eruption, surveys have indicated potential habitat and it is accessible to the Swift Reservoir population. Therefore, the effects from the proposed work on Forest Service Road 2586000 may affect bull trout habitat.

Some of the project area is in the Upper Lewis River subbasin (5th field Upper Lewis River watershed). The nearest aquatic resource of concern is the Lewis River. Adult bull trout may spawn in this section of the Lewis River. Juvenile bull trout from this population most likely rear

in Swift Reservoir as an adfluvial population, however the nature of these projects would have no effect on bull trout.

Some of the project area is in the White Salmon River subbasin (5th field White Salmon River watershed). There are no bull trout or anadromous fish present in the White Salmon River on National Forest System lands; therefore, there the proposed action would have no effect on bull trout or anadromous fish.

There is no critical habitat for bull trout, salmon or steelhead upstream of Merwin Dam or in Trout Lake Creek; therefore there would be no effect to designated critical habitat.

Summary of Effects Determinations
The proposed action would have **no effect** on coho salmon, Chinook salmon, and steelhead because they are not within the project area due to Merwin Dam and Condit Dam, both of which block passage of anadromous fish. This project **may affect** Essential Fish Habitat for Chinook and coho as defined by the Magnuson-Stevens Fishery Conservation and Management Act.

The project is **likely to adversely affect** bull trout because of short-term sediment releases during project activities. In addition, it will have **no impact** on Forest Service sensitive fish species. Table 6 provides a summary of the species evaluated and the effect determinations for each species.

Table 7. Fish Species of Concern on Gifford Pinchot National Forest, as of November 20, 2007.

Species Name	Species Status, Federal Register, Date of Listing	Field Review for Clear Creek Road Decomissioning Project		Effect Determination
		Habitat Present?	Species presence and life stage	
Columbia River Bull Trout *Salvelinus confluentus*	Threatened 64 FSR 58910 11/01/99	Yes	Yes	Likely to Adversely Affect because of sediment related to culvert removal on FSR 2586000.
Critical Habitat for Columbia River Bull Trout	Designated 70 FSR 56212 09/26/05	No (not designated on NF lands)	N/A	No Effect
Essential Fish Habitat for Coho and Chinook Salmon	N/A	Yes – Coho No - Chinook	No	May Affect

Memorandum of Understanding with Washington Department of Fish and Wildlife
This project is designed to be consistent with the 2005 Memorandum of Understanding (MOU) between the Forest Service and the Washington Department of Fish and Wildlife. The MOU states that permanent bridges and culverts on fish-bearing stream shall be designed, installed, and maintained to provide unhindered passage for all species and all life stages that are likely to be encountered at the site. In addition, it states that culverts in fish-bearing streams shall be designed and installed based on the stream simulation approach. Stream simulation designs are intended to mimic the natural stream characteristics and processes.

Cumulative Effects
Some additional work may be completed by the Forest Service and other entities in the area that will affect fisheries. Fish habitat and species distribution are expected to improve as a result of several ongoing and upcoming projects in the project area. The decommission of Forest Service Road 8322700 will open an additional 0.6 miles of fish habitat in the Muddy River watershed, and the upgrade of a current fish passage barrier on Forest Service Road 8322 is expected to open an additional 1.4 miles of fish habitat. This additional habitat is expected in above and beyond the 1.1 miles of fish habitat that will be opened as a result of this project through decommissioning of Forest Service Road 2586. The quality of fish habitat in the project area will also be improved through proposed nutrient enhancement projects, Instream fish habitat improvement projects, bank stability projects, and future Large Wood recruitment projects that have been strategized for Clear Creek and the Muddy River (USDA 2008). The reintroduction of anadromous fish into the Lewis River basin above Swift Reservoir is planned for 2010. This non-Forest Service project is expected to improve anadromous species diversity and distribution within the Muddy River and Upper Lewis River watershed. Culvert replacements associated with the Legacy Roads Project will further improve fish habitat in the watershed.

Aquatic Conservation Strategy Objectives
To be consistent with the 1994 Northwest Forest Plan, projects must be consistent with the Aquatic Conservation Strategy (ACS) Objectives. A finding must be reached that a project "meets" or "does not prevent attainment" of the ACS objectives. Discussion on this finding is included below.

Objective 1: *Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.*

- This project will maintain and restore watershed-scale aquatic systems by reducing the effects of roads on streams. This action will reduce the effects of roads on increased streamflows, hydrologic flow patterns, and sediment delivery to streams through the restoration of road and stream-crossings during road decommission activities.

Objective 2: *Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include flood plains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.*

- This project will maintain and restore hydrologic connectivity within several watersheds. This action restore physical streamflow routes to be unobstructed through the restoration of road and stream-crossings during road decommission activities. Additionally, the obliteration of roads located in riparian areas will restore hydrlogic connectivity between adjacent flood plains and upslope areas.

Objective 3: *Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.*

- This project will maintain and restore the physical integrity of aquatic banks and shorelines through the restoration of road and stream-crossings during road decommission activities. Streambanks will be revegetated to ensure physical integrity of restored stream crossings is maintained.

Objective 4: *Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.*

- This project will maintain and restore water quality by reducing the amount of sediment delivered to streams, which has the potential to decrease stream temperatures. Road decommissioning activities will restore flow patterns along roads, which will reduce the amount of sediment generated from road surface erosion, as well as the likelihood of road failures due at road-stream crossing blockage.

Objective 5: *Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.*

- This project will maintain and restore water quality by reducing the volume of sediment delivered to streams and by restoring the sediment distribution to be more natural through reducing the amount of fine sediment that is delivered to streams from roads. Road decommissioning activities will restore flow patterns along roads, which will reduce the amount of sediment generated from road surface erosion, as well as the likelihood of road failures due at road-stream crossing blockage.

Objective 6: *Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.*

- This project will maintain and restore in-stream flows by reducing the volume of sediment delivered to streams and by restoring streambed characteristics to have less fine sediments that are generated from roads. Road decommissioning activities will reduce the effects of roads on increased streamflows, hydrologic flow patterns, and sediment delivery to streams through the restoration of road and stream-crossings during road decommission activities.

Objective 7: *Maintain and restore the timing, variability, and duration of flood plain inundation and water table elevation in meadows and wetlands.*

- This project will maintain and restore the timing, variability and duration of stream bank inundation by restoring hydrologic connectivity in riparian areas. The decommissioning of roads located in riparian areas will restore hydrologic connectivity between adjacent flood plains, wetlands, and upslope areas to reduce the effects of roads on increase peak flows and to restore natural inundation patterns.

Objective 8: *Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.*

- This project will maintain and restore the composition and diversity of plant communities in riparian areas by restoring hydrologic connectivity at road-stream crossings. Streambanks will be revegetated during road decommissioning activities to ensure physical stability of restored stream crossings is maintained and to reestablish a native plant community on disturbed ground.

Objective 9: *Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.*

- This project will maintain and restore the composition and diversity of plant communities in riparian areas by decompacting and revegetating riparian areas affected by roads. Seeding and mulching will be used during road decommissioning activities to ensure establishment of a native plant community on disturbed ground. Road decompaction will be purposefully designed to support foot traffic of native vertebrate species.

Wildlife

A wildlife biological evaluation was completed to determine the effects of the project on federally listed species, and their critical habitats, and to determine the need for consultation or conferencing with the U.S. Fish and Wildlife Service. This examination also included analysis of and impacts to the Region 6 Sensitive species and wildlife species covered under the February 1995 *Gifford Pinchot National Forest Land and Resource Management Plan, Amendment 11*(Forest Plan). The complete biological evaluation can be found in the project file; a summary is included here.

Table 7 lists the TES species considered in this evaluation, and summarizes the effect to each.

Table 8. Summary of effects to threatened, endangered, proposed, and sensitive species.

Species Name	Species Status	Habitat presence within or adjacent to the project area?	Species documented in the project area?	Effect Summary
MAMMALS				
Townsend's Big-eared Bat *Corynorhinus townsendii*	USFS Sensitive (D)	Yes	No	No Impact
Keen's Myotis	USFS	Yes	No	No Impact

Table 8. Summary of effects to threatened, endangered, proposed, and sensitive species.				
Species Name	Species Status	Habitat presence within or adjacent to the project area?	Species documented in the project area?	Effect Summary
Myotis keenii	Sensitive (S)			
BIRDS				
Northern Spotted Owl *Strix occidentalis caurina*	Threatened (D)	Yes	Yes	May Affect, Not Likely to Adversely affect
Critical Habitat for the Northern Spotted Owl	Designated	Yes	No	No Effect
American Peregrine Falcon *Falco peregrinus anatum*	USFS Sensitive (D)	Yes	Yes	No Impact
Bald Eagle *Haliaeetus leucocephalus*	USFS Sensitive (D)	Yes	Yes	No Effect
Harlequin Duck *Histrionicus histrionicus*	USFS Sensitive (D)	Yes	Yes	No Impact
REPTILES and AMBHIBIANS				
Cope's Giant Salamander *Dicampton copei*	USFS Sensitive (D)	Yes	No	MIIH
VanDyke's Salamander *Plethodon vandyke*i	USFS Sensitive (D)	Yes	No	MIIH
Cascade Torrent Salamander *Rhyacotriton cascadae*	USFS Sensitive(D)	Yes	No	MIIH
BUTTERFLIES				
Johnson's hairstreak *Callophrys johnsoni*	USFS Sensitive (D)	Yes	No	No Impact
MOLLUSKS				
Puget Oregonian *Cryptomastix devia*	USFS Sensitive (D)	Yes	Yes	MIIH
Evening Fieldslug *Deroceras hesperium*	USFS Sensitive (S)	Yes	No	MIIH
Warty Jumping Slug *Hemphillia glandulosa*	USFS Sensitive (D)	Yes	Yes	MIIH
Malone's Jumping Slug *Hemphillia malonei*	USFS Sensitive (D)	Yes	Yes	MIIH
Panther Jumping Slug *Hemphillia pantherina*	USFS Sensitive (D)	Yes	No	MIIH
Oregon Megomphix *Megomphix hemphilli*	USFS Sensitive (S)	Yes	No	MIIH

Table 8. Summary of effects to threatened, endangered, proposed, and sensitive species.				
Species Name	Species Status	Habitat presence within or adjacent to the project area?	Species documented in the project area?	Effect Summary
Crowned Tightcoil *Pristiloma pilsbryi*	USFS Sensitive (S)	Yes	No	MIIH
Blue-gray Taildropper *Prophysaon coeruleum*	USFS Sensitive (D)	Yes	No	MIIH

(S) - Suspected on the Forest
(D) - Documented on the Forest
MIIH – May impact individuals or habitat

Existing Condition and Environmental Effects

The following threatened and sensitive species may occur in the vicinity of the project sites, and could be affected by the activity:

Federally-Listed Species

Northern Spotted Owl

Species Account

The northern spotted owl (*Strix occidentalis caurina*) was listed as a threatened species throughout its range in Washington, Oregon and northern California effective July 23, 1990 (USDI, 1990a). Loss of late-successional forest habitat from timber harvest was the primary reason for the listing.

The status review for the northern spotted owl (NSO) completed in 2004 found that the major threats at this time include effects of past and current timber harvest, loss of habitat from fire, and barred owls. Of the threats identified at the time of listing, only one (predation linked to forest fragmentation) does not now appear well supported (Courtney et al. 2004)

The NRIS Fauna database documents that spotted owl surveys have been conducted in the analysis area since at least 1979. The database shows that there have been many spotted owl detections made in the project area, with most of these detections being made during spotted owl surveys in the 1980s through the early 1990s. Barred owls were also detected in the project area in the late 1980s. There is no current survey information about spotted owls in the analysis area.

The timber stands in the project area have been cut over fairly extensively since about the 1950s. This has left much of the suitable spotted owl habitat fragmented by young single-story plantations with small to medium-sized trees.

Direct and Indirect Effects

No Action (Alternative 1)

With this alternative none of the identified roads would be closed or decommissioned. There would be no new effects with this alternative, however the opportunity to reduce human disturbance in suitable spotted owl nesting habitat, and reduce habitat fragmentation would be forgone at this time. There would be no cumulative effects.

Proposed Action (Alternative 2)

Closing roads to motorized vehicles is generally beneficial to spotted owls. A reduction in motorized use of an area can reduce noise disturbance in suitable nesting habitat, and reduce habitat fragmentation as decommissioned roads that pass through suitable habitat patches are reclaimed by trees. In addition, decommissioning roads reduces the need to fell hazard trees that may occur along these roads. Short-term negative effects can occur with noise generated by the use of heavy equipment in suitable nesting habitat. An analysis of potential injury to spotted owls associated with noise and visual disturbance was completed by the U.S. Fish and Wildlife Service (USFWS) in 2003. This analysis concluded that there is a likelihood of injury to spotted owls if the activity occurs in close enough proximity to cause an owl to flush from a nest or miss one or more feedings of juveniles due to disturbance of foraging adults. The USFWS determined that the disturbance threshold for the use of heavy equipment is 35 yards. Limiting noise generating activity during the early portion of the nesting season (March 1 to June 30) would mitigate effects by minimizing activity during the time of the nesting season when the juveniles are unable to fly.

For this project, an analysis was done to determine which roads to be treated pass through larger blocks of suitable nesting habitat or pass near historic spotted owl activity centers. These are the areas where spotted owls are most likely to be found currently, and given the small disturbance threshold, these are areas where disturbance to spotted owls due to noise could occur.

The limited operating period of March 1 to June 30 would be required for noise generating activity on the following Forest Service Raods: 2559-100, 2559-103, 9039-620, and 8800-717.

With implementation of the limiting operating period, this project **may affect, but is not likely to adversely affect** spotted owls due to short-term noise effects. There would be no effects to suitable spotted owl habitat and **no effect** to designated critical habitat.

Cumulative Effects

Other projects that could occur in the Clear Creek Roads project area include road maintenance and repair activities, and the proposed Wildcat timber sale. Routine road maintenance is usually done in the spring through the summer, and is not normally subject to seasonal spotted owl restrictions. Larger road repair projects that would generate more intensive noise disturbance would likely be subject to a limited operating period if needed. The Wildcat timber sale would likely primarily commercially thin younger plantation stands that don't provide important spotted owl habitat. Limited operating periods would be implemented where required during implementation of the Wildcat timber sale. The Clear Creek Roads project and these other projects would result in minor noise disturbance, but no loss of habitat. The cumulative effect of this project would be negligible.

Sensitive, and Survey and Manage Species

Table 6 above lists sensitive species that have suitable habitat within or adjacent to the project area, but which would not be impacted by implementing the proposed action. Table 8 summarizes the important habitat for these species, and the rationale for determining that there would be no impacts or cumulative effects.

Table 9. Impact summary for sensitive species.

Species	Important Habitat Elements	Rationale for No Impact or Beneficial Impact
Keen's Myotis	Cliffs, caves, large hollow trees and snags for roosting and hibernating. Mature trees for foraging.	No impacts to structures that may be used for roosting or hibernating. No impacts to mature trees, and snags possibly saved from firewood cutting at dispersed camp sites.
Peregrine Falcon	High sheer cliffs for nesting.	Required limited operating period will minimize noise disturbance during the critical part of the nesting season.
Bald Eagle	Old-growth and mature conifer trees for nesting and roosting located near large fish-bearing waterbodies.	There would be no impacts to potential nesting and roost trees. Closing vehicle access to the Lewis River, and Muddy River floodplains would reduce the potential for human disturbance at sites likely to be used by bald eagles.
Harlequin Duck	Larger creeks and rivers with fast-flowing water with nearby loafing sites. Low-gradient streams with clean water supporting adequate macroinvertebrate fauna for brood foraging. Large snags for potential nest sites.	There would be no impacts to potential nesting trees or shoreline vegetation. Closing vehicle access to the Lewis River, and Muddy River floodplains would reduce the potential for human disturbance at potential nest sites.
Johnson's Hairstreak	Mature and old-growth conifer trees with dwarf mistletoe for the larvae. Flowering shrubs and forbs to provide nectar for adults.	The project would not affect any large trees, and only a minimal amount of roadside vegetation.

Townsend's Big-eared Bat and Forest Bats

Species Account

Most bat species occurring in the Pacific Northwest roost and hibernate in crevices in protected sites. Suitable roost sites and hibernacula however, fall within a narrow range of temperature and moisture conditions. Sites commonly used by bats include caves, mines, large snags and decadent trees, wooden bridges, and old buildings.

Townsend's big-eared bats are strongly associated with caves or old buildings to provide maternity sites, roost sites, and hibernacula. There are no known caves or other structures that would be suitable for these bats near any of the sites, with the exception of Forest Service Road 8800-717.

An old log stringer bridge on the Forest Service Road 2559-100, which would be removed in the proposed action, may provide a short-term night roost site for forest bats, but it doesn't likely

provide for longer-term uses such as a maternity site. Bridges that provide maternity sites, or that are important night roost sites, tend to be constructed of milled timbers or concrete, have numerous small crevices, will absorb heat during the day and hold heat well into the night, and have a deck impervious to rain, such as asphalt (Jim Nieland, retired USFS, pers.com. 2008). The log stringer bridge has a rotted wooden deck that probably allows rainwater to drip through to the logs underneath the deck. Due to it's log construction and lack of sun exposure, it's unlikely the bridge absorbs heat during the day. The bridge is located in Late-Successional Reserve land allocation (according to the Northwest Forest Plan) and is surrounded by old-growth timber stands that likely contain numerous large snags and decadent trees that provide alternate roost sites for forest bats.

Direct and Indirect Effects

No Action (Alternative 1)

This alternative would have no impact to Townsend's big-eared bat. The bridge would remain in place on Forest Service Road 2559-100 and could continue to be used by bats as a night roost. In the long-term, the bridge will probably be lost, either eventually falling apart due to rot, or be washed away in a large flood event. This alternative would have no impacts to forest bats.

There would be no cumulative effects, as no effects were identified for the no action.

Proposed Action (Alternative 2)

The cave near Forest Service Road 8800-717 does not have a history of use by Townsend's big-eared bat. In addition, the action to close the road would involve placing boulders and possibly soil on the road to block it, and would not affect conditions in the cave for bats. There would be no impacts to this species.

Removal of the bridge on Forest Service Road 2559-100 would result in the loss of a structure that may be used by bats as a night roost; however, there are likely numerous other roost sites in the area within the old-growth stands around the bridge. Removal of the bridge would have minimal impacts to forest bats.

Cumulative Effects

There would be no cumulative effects to Townsend's big-eared bats. The bridge site is located in a Late-Successional Reserve land allocation, so there would be no harvest of the old stands that currently provide alternate roost sites in the area for other forest bats. Other forest management activities that could occur that may impact forest bat habitat are hazard tree felling along roads, which would remove additional potential roosting structures, and timber harvest. There is currently no planned timber harvest in the analysis area that would impact bat habitat. About 100 hazard trees were felled along the 25 and 90 Roads in 2006. The trees that were felled were scattered over several miles of road and had little impact on the total number of snags available. The loss of the bridge would have a minor cumulative effect to the loss of the hazard trees.

Copes Giant Salamander, VanDyke's salamander, and Cascade Torrent Salamander

Species Account

Cope's giant salamanders are usually found in small rocky streams in coniferous or mixed forests, and are most abundant under large rocks in the pools in these streams. They are most abundant in undisturbed forests, but are somewhat resilient to logging and usually recover as the forest matures (Jones et al. 2005). Fully metamorphosed adults are uncommon for this species, so they are nearly always found in the streams and the streams need to be flowing year-round. Cope's giant salamander has not been documented in the vicinity of any of project sites.

Van Dyke's salamanders are often associated with rocky, steep-walled stream valleys. In the Cascade Range, they are usually found under cobble and sometimes wood, within a few meters of a stream. They are most often in loose rock piles, seeps in the valley wall with loose rock or gravel, splash zones at the base of waterfalls, or adjacent to chutes and cascades. Van Dyke's salamanders have persisted at numerous locations that were severely disturbed by the 1980 eruption of Mount St. Helens (Jones et al. 2005). In addition, this species can be found in upland talus sites similar to Larch Mountain salamander.

Cascade torrent salamanders are found in similar habitats. They require cool, wet environments. Both larvae and metamorphosed individuals occur along high-gradient, cold, rock-dominated stream courses and near seeps. The aquatic larvae are associated with valley and headwall seeps and spray zones at the base of waterfalls and cascades, where gravel and cobble are present with shallow (<1 cm), low-velocity flows. Adults are often interspersed among the larvae or on stream banks under rocks or wood. They are usually within 1 meter of the water, but during prolonged rain they may be found more than 10 meters away. This species has persisted in streams impacted by the 1980 eruption of Mount St. Helens, suggesting that forest cover may not be a critical habitat feature at higher elevations (Jones et al. 2005).

Direct and Indirect Effects

No Action (Alternative 1)

With this alternative, none of the identified roads would be closed or decommissioned. Since these are minor roads, it's unlikely that they would receive maintenance that might prevent plugged culverts or other drainage problems. If plugged culverts were washed out in a storm event, the uncontrolled pulse of sediment would have negative effects to salamanders in the streams. In addition, leaving the culverts in place would continue to leave habitat along the streams in a fragmented state. The opportunity to reconnect habitat by removing the roadbed and culvert would be forgone. Although there would be no new impacts with this alternative, the continuing impacts would be greater than the potential impacts with the proposed action. The alternative may impact individuals or habitat, but would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Cumulative Effects – Not treating these sites combined with a lack of routine road maintenance on the roads that would have been decommissioned, would be cumulative to lack of maintenance of other level 2 roads in the sub-basins. Lack of road maintenance increases the potential for large amounts of sediment to find its way into streams, potential affecting salamanders.

Proposed Action (Alternative 2)
Surveys have not been done for this project, and are not required for survey and manage or sensitive species for this type of project. Former surveys have not documented any of these three salamanders in the vicinity of the roads that would be stabilized or decommissioned. If any salamanders inhabited the streams in the vicinity of the roads however, they could be impacted during the process to remove culverts and recontour the banks at the former stream crossings. The direct impacts would be short-term, involving potential disturbance to rock and down wood that could be providing cover, and generating sediment that could impact animals and habitat downstream. Mitigation would be in required to intercept sediment at live stream crossings and the disturbance to cover objects would only occur at small discrete sites adjacent to the roads.

In the long-term, removing the culverts would benefit these species by reconnecting habitat above and below the roads.

The activity is not likely to have a significant negative impact on the species' habitat, microclimate, life cycles, or life support requirements. The project may impact individuals or habitat, but would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Cumulative Effects
Other projects that could occur in the Clear Creek Roads project area include road maintenance and repair activities, and the proposed Wildcat timber sale. Potential impacts from road repair activity would be similar to the Clear Creek Roads project, and similar mitigations would be in place to protect water quality. It is still in the planning stages, but the Wildcat timber sale would probably commercially thin in riparian reserves, but would include a no-cut buffer along streams to maintain shading and protect water quality. The mitigations included with this project would minimize the potential to affect these species so there would be negligible cumulative effects.

Terrestrial Mollusks
Species Account
Mollusk surveys have not been done specific for this project. The mollusk survey protocol does not require surveys for ground disturbing projects that primarily impact the road prism. Strategic surveys under the survey and manage program were conducted in the timber stand between user-created roads 9300cb and 9300g, and Malone's jumping slugs and Puget Oregonian snails were detected there. It is possible that these species have been impacted by unauthorized vehicle use of these two roads, as well as dispersed camping and associated destruction of logs and deciduous trees in the Clear Creek floodplain.

Malone's jumping slug and warty jumping slug have been found at many sites elsewhere on the Forest in habitat similar to what exists along the roads to be stabilized or decommissioned. Puget Oregonian as well as Oregon megomphix are almost always associated with mature big-leaf maple trees, and are not found in areas without these trees. The area between user-created roads 9300cb and 9300g is the only place where large maples exist near the roads to be decommissioned or closed. Other species from Table 6 that occur in habitat similar to what is found in the project area are evening fieldslug, panther jumping slug, crowned tightcoil, and blue-gray taildropper.

Direct and Indirect Effects

No Action (Alternative 1)

Although there would be no potential for short-term minor impacts along road edges with this alternative, the opportunity to reduce habitat fragmentation by decommissioning roads would be forgone. In addition, there would continue to be impacts from vehicles using the area near user-created roads 9300cb and 9300g where there are known Puget Oregonian and Malone's jumping slug sites. There would be no new impacts, but there would be the continuing impacts of off-road vehicle use, soil disturbance, and loss of dead and down wood near dispersed camp sites.

Cumulative Effects – The continuing impacts of this alternative would be minor, but would be cumulative to other ground-disturbing activities. The proposed Wildcat Timber Sale and other road maintenance activities have the potential to impact these species.

Proposed Action (Alternative 2)

Terrestrial mollusk populations are not likely to be impacted by the proposed activity. Generally, habitat for these species are mature forest stands with medium to large trees with large well decayed logs and smaller pieces of wood, deciduous leaf litter, and a complex understory of shrubs and forbs. If they exist along road edges, they are there because the adjacent habitat is suitable, and that is where the larger population is likely to be found.

The proposed activity would disturb a minimal amount of habitat near the edge of the road prisms, but the majority of the habitat that exists along these roads would not be affected. There could be short-term direct impacts to a small number of mollusks that exist in the ditchlines along these roads, but in the long-term, habitat fragmentation would be reduced along decommissioned roads, and habitat would be protected at the heavily-used dispersed campsites where vehicle access would be restricted. Due to the potential to affect a minor amount of habitat along the edge of the road prism, the proposed action may impact individuals or habitat, but would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Cumulative Effects

Since a negligible amount of habitat would be affected with this project, there would be no cumulative effects.

Management Indicator Species

Species Account

Management indicator species for the Gifford Pinchot National Forest are: spotted owl, pine marten, pileated woodpecker, cavity excavators, wood duck, goldeneye duck, deer and elk, and mountain goat.

Direct and Indirect Effects

No Action (Alternative 1)

With the No Action alternative, there would be no new impacts, but the opportunity to reduce road density, benefiting pine marten, elk, and deer would be forgone. There would be no cumulative effects.

Proposed Action (Alternative 2)
The Clear Creek Road project would not impact any of these species, and would benefit many of them.

The potential effects to spotted owls was discussed earlier. With implementation of the limited operating periods to minimize noise disturbance during the early nesting season, the potential effects to spotted owls would be negligible, and there would be small benefits to habitat over time.

Pine marten can be negatively affected by the presence of roads that fragment habitat. Decommissioning roads and allowing trees and other vegetation to return to the old road prism would benefit marten. This is especially true where road decommissioning would enlarge existing roadless areas, as is the case with the proposed decommissioning in the Clear Creek watershed. Pine marten and pileated woodpeckers are dependant on mature conifer habitat. Suitable habitat for pine marten and pileated woodpeckers wouldn't be impacted by this project.

Pileated woodpecker and other cavity excavators are dependant on timber stands with numerous snags and logs. This project would not impact existing snags or logs, and blocking access to some dispersed campsites may protect existing and future snags and logs around these campsites from loss due to firewood cutting, and reduce the need to fell hazard trees along roads.

There is no habitat for wood duck and goldeneye duck in the project area, so these species would not be impacted.

Deer and elk would benefit by a reduction in road density, especially since most of the roads to be closed are in biological winter range. The Forest Plan standard for biological winter range is that roads open to motorized vehicles should add up to no more than 1.7 miles per square mile. The winter range area in the project area consists of about 82 square miles. About 33 miles of roads have already been decommissioned or otherwise closed in the winter range area, but roads data in the Forest's GIS database has not been updated to reflect the decommissioning work that has already occurred. It is estimated that the density of roads open to motorized vehicles during the winter months is currently about 2 miles per square mile. It is estimated that the roads to be decommissioned with this project would further reduce the road density in winter range by about 0.2 miles per square mile.

Implementing this project would further reduce road density to near the Forest Plan standard, and increase habitat capability for elk and deer.

There is no mountain goat habitat in the project area. Mountain goats have been observed, apparently migrating between occupied habitat north of Mount Adams, to habitat around Mount St. Helens. The roads that would be treated with this project are generally lower in elevation that the likely migration routes that mountain goats would use, so they are unlikely to benefit from the reduction in road density.

Cumulative Effects
There would be no cumulative effects to any of these species.

Social Impacts/Recreation

Existing Condition
Beginning in the 1960s and accelerating in the late 1970s and early 1980s, the Gifford Pinchot National Forest established a large network of roads, primarily constructed as logging roads for removing timber being harvested from National Forest System lands. Most of these roads were left open for public use and were soon used for a wide variety of recreation, including hunting, fishing, camping, hiking access, and site seeing. Road construction continued until the early 1990s when the Forest timber program was dramatically reduced.

The population of the Washington State grew approximately 20% per decade from1960 to 2000, and the population of Clark County has grown just over 20% in the last seven years (Washington State Office of Financial Management). A large percentage of that population participates in outdoor recreation activities and much of it on the Gifford Pinchot National Forest. Fifteen to 20% of the state's population participates in camping, fishing or hunting, and 46 to 54% of the population participates in picnicking or nature activities (Washington Recreation Conservation Office Draft 2008 SCORP Document). With this amount of the population interested in outdoor activities, virtually every road on the forest is someone's favorite place.

Oregon has seen similar growth rates in the 1990s with counties in the Portland metropolitan area growing over 20% over those 10 years (Negative Population Growth – source: US Bureau of the Census). A large number of Portland area residents also enjoy visiting the Gifford Pinchot National Forest; however, new road construction on the Forest had essentially stopped in the early 1990s and road densities began major declines in 1996 with a major flood event washing out some roads and the subsequent decommissioning and lack of road maintenance due to a reduction of most of the timber program. This is creating a situation where our road miles are declining, along with the places people can go for dispersed recreation, at the same time that our population is increasing.

With the increase in population, we are also seeing an "urbanization" of our forest lands where crime, litter and vandalism are increasing. This has prompted large timber land holders such as Weyerhaeuser and Olympic Resource Management, to close their roads to public access, further crowding the use on public lands. Pacificorp and the Washington Department of Natural Resources are now considering further restrictions in the Lewis River Watershed, primarily along the reservoirs, which has the potential of displacing campers who may look to the National Forest to go camping.

The roads proposed for closure or decommissioning in this project represent a relatively small portion of the roads in the Lewis River drainage; however, they represent one more portion of the road system that would not be accessible for recreation on the Gifford Pinchot National Forest.

The sites in this proposal are generally low use areas and the condition of many of these roads makes them poor roads to drive on for highway vehicles.

Use on these roads includes access to the Muddy River from Forest Service roads 2500910, 2500970 and 9300picnic and user-created extensions of these roads. Clear Creek is accessed by 9300g and 9300cb. Forest Service Road 8800717 offers dispersed camping just off FSR 8800 which is a popular route just outside of Trout Lake, WA. Several of these roads were previously closed, but reopened by users trying to get closer to the rivers. Hunting occurs on all of these roads during the fall hunts. There are some hunters who will drive out every road that is opened at this time. Some camping occurs along the rivers and end of the spur roads. Camping is more common during the fall hunting season, and is relatively light during summer. Typically users that are seeking out these sites, are looking for areas that they can feel a certain amount of solitude, yet still be able to drive to.

Environmental Effects

Direct and Indirect Effects

No Action (Alternative 1)

The existing uses on the roads proposed for closure in this project, would continue in the no action alternative; however, if the roads continue to deteriorate due to a lack of road maintenance, access would also decrease. As populations increase, users would probably extend the existing user-created roads, and/or develop new ones. If the trend for private timber land owners to close access to their lands continues, the demand for use on National Forest System lands would continue to increase.

Proposed Action

The proposed action would result in reducing road miles by 32% in the Clear Creek Watershed, 8.7% in the Muddy River Watershed, 4% in the Elk Creek Watershed, and 1% in the Little Creek and Lower Trout Lake Creek watersheds. There is no data as to how many users recreate in these areas, but based on observation by Forest Service staff, it is considered to be a small proportion of the visitors on this Forest. Most people who currently recreate on these roads would have to either walk in or find new sites to visit.

Without additional law enforcement in the area, some users are likely to create new roads to access the lower end of Clear Creek and the Muddy River near Forest Service Road 2500.

Cumulative Effects

As part of the *Culvert Upgrades and Road Decommissioning Projects Environmental Assessment*, 10.7 miles of road were decommissioned in the upper Lewis River drainage in 1999 and 2000. In the Clear Creek Roads Project, only 0.4 miles would be decommissioned as part of the proposed action in the upper Lewis River drainage, as the majority of this project is being completed in the Muddy River watershed, but this 0.4 miles of road would add to the existing roads that have already been decommissioned. Future decommission projects in the Muddy River Watershed include FSR 8322700 and FSR 8123. No other roads are being proposed for closure or decommission in the White Salmon watershed. In the larger planning area, there would be less access to stream areas and for dispersed camping.

Federally-Listed and Sensitive Botanical Species

For the most part decommissioning and stabilization activities would occur within the road prism and roadcuts, and would not substantially affect "natural" habitats beyond these areas. However, removal or reconstruction of stream culverts has the potential to impact adjacent stream and riparian habitats, either: (1) directly due to disturbance created by equipment operations along the stream channel above or below the road crossing, or (2) due to erosion or movement of unstable soil, bedload and debris during and subsequent to unburying stream crossings.

The project area was surveyed on 8/13/2007, 8/14/2007, 10/10/2007, and 10/17/2007. The only Federally-listed species potentially found on the Gifford Pinchot National Forest is the threatened species *Howellia aquatilis* (water howellia). No suitable pond habitat for the species was encountered in the project area. Only one Sensitive species, *Pseudocyphellaria rainierensis*, was found in the project area. This site was upslope far enough from project activities that it is unlikely to be impacted by the project. No other site for Federally-listed or Forest Service sensitive species were found in the project area. As such, there are **no effects** and **no impacts** upon these species.

There are a number of sensitive species that are "survey impractical" which are too difficult to detect adequately using project clearance surveys. Fourteen of these species are known or suspected to occur on the Gifford Pinchot National Forest, including one lichen and 13 fungi. There are no known occurrences of any of these species in the Clear Creek project area, but neither are there any recorded surveys for these species in the area. Roads are not considered prime suitable habitat for any of the survey impractical species; however, riparian habitats adjacent to road crossings may include suitable habitats for the sensitive lichen and fungi. These areas may be disturbed to some degree by culvert removal or reconstruction activities. The scale of disturbance is likely to be small, and as such the risk of impacting these species is low. In light of these factors, and in conjunction with our lack knowledge regarding the local occurrence and distribution of these species, a determination of "**may impact individuals or habitats, but will not likely contribute towards Federal listing or cause a loss of viability to the population or species**" has been made.

Forest Service Roads 2559100 and 2559103 were not surveyed as part of the Clear Creek Roads Project surveys in 2007. A review of past survey activities and known sightings in the area

revealed no records of surveys in the area, and no occurrences of Federally-listed or Forest Service sensitive species. Based on the findings of Clear Creek surveys in 2007, and given the relatively small scale of impact to suitable habitats, a determination of "**may impact individuals or habitats, but will not likely contribute towards Federal listing or cause a loss of viability to the population or species**" has been made for decommissioning these roads.

Noxious Weeds

Several noxious weed species were found in the project area, although not in heavy concentrations. Mitigations to prevent the spread of noxious weeds are included as part of the proposed action.

Non-native plants include those species introduced intentionally or unintentionally to areas where they do not naturally occur. Invasive non-native plants in the Pacific Northwest most often originate from Europe and Asia. Problems can arise when the associated natural predators and diseases that controlled these species in their native habitats are not present in the habitat where they are introduced. If a species is unchecked by predators, it may become invasive, dominating the site and altering ecosystem balance. The results may include changes in biodiversity, fire frequency, soil erosion and hydrology of a site. Other effects include poisoning of livestock and reducing the quality of recreational experiences. There are an estimated 2,000 invasive and noxious weed species in the U.S and 130 class A, B & C weeds listed in Washington State in 2006.

Forest Service Manual direction requires that noxious weed risk assessments be prepared for all projects involving ground-disturbing activities. For projects that have a moderate to high risk of introducing or spreading noxious weeds, recent Forest Service policy requires that decision documents must identify noxious weed control measures that will be undertaken during project implementation (FSM 2081.03, 11/29/95). In addition, the Pacific Northwest Region Invasive Plant Program Record of Decision for Preventing and Managing Invasive Plants (USDA 2005) provides invasive plant prevention and treatment/restoration standards and direction on all National Forest Lands within the Pacific Northwest Region of the Forest Service.

There is a high risk of spreading noxious weeds with this project. Six noxious weed species were found in the project area, and are listed below. These species are common and widespread across the Forest, as well as the project area. Within the project area these species were patchy in their distribution and not overly abundant given the predominately shady condition of most of the roads. As such, the risk of spreading these species is not as great as the high ranking might suggest. Maintenance of roadside shade cover, and quick establishment of the native grass mix, as included in the mitigation measures, would improve the potential to control weeds in the project area.

Cytisus scoparius, scotchbroom, is a species of high priority for control or eradication on the Forest. A small to moderate-sized infestation of this species was found on the lower end Forest Service Road 2586000 near its junction with Forest Service Road 2500. Although this site is well outside the project area its location along the access road to the project poses a substantial risk for dispersal into the area.

Table 10. Noxious Weeds in Clear Creek Road Project Area		
Species	**Common Name**	**Weed Classification**
Circium arvense	Canada thistle	C
Circium vulgare	bull thistle	C
Hypericum perforatum	St. John's wort	C
Hypochaeris radicata	cat's ear	B
Leucanthemum vulgare	oxeyed daisy	B
Senecio jacobaea	Tansy ragwort	B

CONSULTATION AND COORDINATION

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

ID TEAM MEMBERS:

Amy Lieb, Hydrologist, IDT Leader
Bill Uyesugi, Recreation Planner
Mitch Wainwright, Wildlife Biologist
Adam Haspiel, Fisheries Biologist
Cheryl Mack, Archeologist
John Scott, Botany Technician
Andrea Ruchty, Botanist
Erin Black, Writer/Editor/NEPA Coordinator

FEDERAL, STATE, AND LOCAL AGENCIES:

US Fish and Wildlife Service
Formal consultation for aquatic species for this project is covered under the June 14th, 2007 USFWS *Biological Opinion and letter of Concurrence USDA Forest Service, USDI Bureau of Land Management and the Coquille Indian Tribe for Programmatic Aquatic Restoration Activities in Oregon and Washington That Affect ESA-listed Fish, Wildlife, and Plant Species and their Critical Habitats.* According to the programmatic, a pre-notification process is required before project activities can occur.

National Marine Fisheries Service
There will be no effect to listed anadromous species. However, Essential Fish Habitat (EFH) for Chinook and coho may be affected. Consultation with the National Marine Fisheries Service for EFH is covered under the National Marine Fisheres Service 2007 Biological Opinion.

Washington State Historic Preservation Officer
The National Historic Preservation Act requires consideration be given to the potential effect of federal undertakings on historic resources. This includes historic and prehistoric cultural resource sites. The proposed project has been designed to avoid impacts to two identified cultural sites. With the successful implementation of mitigation measures, there would be no immediate direct or indirect effects on heritage resources; therefore, consultation with the Washington State Historic Preservation Officer was not required.

TRIBES:

Cowlitz Tribe and Yakama Nation
The Confederated Tribes and Bands of the Yakama Nation, the Cowlitz Indian Tribe and the Columbia River Inter-Tribal Fish Commission were contacted during scoping. No comments were received.

Both the Yakama Nation and the Cowlitz Tribe were notified following discovery of a potential tribal site, and a site visit was proposed. On September 6, 2007 representatives from the Cowlitz Indian Tribe visited the site. Recommendations to avoid all cultural sites were incorporated into the design features of the proposed action.

The Forest Service has a Memorandum of Understanding (MOU) with the Yakama Nation for cooperative management of treaty resources. Representatives from the Forest Service and Yakama Nation meet annually to discuss on-going activities and necessary management improvements.

OTHERS:

A complete list of those individuals and interest groups who received information regarding this proposal can be found in the project file.

References:

Altman, B. 1999. Conservation strategy for landbirds in coniferous forests of western Oregon and Washington. Oregon-Washington Partners in Flight. 83 pp.

Bilby, R.E.; Sullivan, K.; and Duncan, D.H. 1989. The generation and fate of road-surface sediment in forested watersheds in southwestern Washington, Forest Science. 35(2): 453-468.

Brown, G.W. 1969. Predicting temperatures on small streams. Water Resources Research. 5(1): 68-75.

Ed Wickersham, Clark-Skamania Flyfishers. Personal Communication, 2006.

Cook C. and A. Dresser. 2004 (in draft). Erosion and Channel Adjustments Following Forest Road Decommissioning, Six Rivers National Forest. Six Rivers National Forest. Eureka, CA

Courtney, S.P., J.A. Blakesley, R.E. Bigley, M.L. Cody, J.P. Dumbacher, R.C. Fleischer, A.B. Franklin, J.F. Franklin, R.J. Gutierrez, J.M. Marzluff, L. Sztukowski. Scientific evaluation of the status of the Northern Spotted Owl. Sustainable Ecosystems Institute. Portland, OR. September 2004.

DOE. 2004. Washington's final 2004 303(d) database. Website: http://www.ecy.wa.gov/programs/wq/303d/2002/2002-index.html. Olympia, WA: Department of Ecology.

DEQ. 1999. Water quality management plan, Rogue River basin, Illinois River sub basin. Medford, OR: Department of Environmental Quality.

Froehlich, H.A. 1976. The influence of different thinning systems on damage to soil and trees. In: Proceedings of the 16th IUFRO World Congress, Div. 4. Oslo, Norway. Pages 333-344.

Froehlich, H.A.; Miles, D.W.R.; Robbins R.W. 1985. Soil bulk density recovery on compacted skid trails in central Idaho. Soil Sciences Society American Journal. 49:1015-1017.

Heilman, P. 1981. Root penetration of Douglas-fir seedlings into compacted soil. Forest Sciences. 27(4): 660-666.

Jones, Lawrence L.C., William P. Leonard, and Deanna H. Olson (editors). 2005. Amphibians of the Pacific Northwest. Seattle Audubon Society.

Lower Columbia Salmon Recovery and Fish and Wildlife Plan (http://www.nwcouncil.org/fw/subbasinplanning/lowerColumbia/plan/)

Negative Population Growth. State Population Facts. (website: http://www.npg.org/states/or.htm)

Nieland, Jim, retired US Forest Service, personal communication, May 2008

NMFS Federal Register documents (http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Index.cfm).

NMFS 1997. Magnuson-Stevens Act Provisions; Essential Fish Habitat (EFH). National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce. Federal Register Vol. 62, No. 244:66531-66559. December 19, 1997.

Oregon Grotto (Chapter) of the National Speleological Society (2006). Annual meeting with Oregon Grotto for exchanging information about the group's cave monitoring activities over the past year.

Recreation Conservation Office. 2008. Draft - The Role of State Government in Outdoor Recreation: Defining and Measuring Success, A State Comprehensive Outdoor Recreation Planning (SCORP) Document.

Reid, L.M. 1981. Sediment production from gravel-surfaced forest roads, Clearwater basin, Washington. M.S. Thesis, Univ. of Washington. Seattle. 247 p.

Reid, L.M., and T. Dunne. 1984. "Sediment production from road surfaces." *Water Resources Res*. 20:1753-1761.

State of Washington, Office of Financial Management. 2007. Official April 1, 2007 Population Estimates. (website: http://www.ofm.wa.gov/pop/april1/).

USDA Forest Service. 1988. General Water Quality Best Management Practices. Pacific Northwest Region. Portland, OR.

USDA Forest Service. 2002. Gifford Pinchot National Forest Roads Analysis. Gifford Pinchot National Forest. Vancouver, WA.

USDA Forest Service. 2008 (in draft). Gifford Pinchot National Forest Restoration Plan. Gifford Pinchot National Forest. Vancouver, WA.

USDA Forest Service and USDI Bureau of Land Management. 2004. Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines. Portland, OR.

USDI. 1990a. Endangered and Threatened Wildlife and Plants; determination of threatened status for the northern spotted owl. Fed. Reg. Vol. 55, No. 23: 26114-26194. June 26, 1990.

WDNR 2004. Washington Department of Natural Resources and Washington Department of Fish and Wildlife. Heritage Database – Wildlife Occurrences in Washington State. Olympia, Washington. Note: these data are subject to WDFW and WDNR sensitive data policies.

Washington Forest Practices Board. 1997. Board Manual: Methodology for Conducting Watershed Analysis under Chapter 222-22 WAC. Version 4.0, Nov. 1997. Washington Dept. of Natural Resources, Forest Practices Division, Olympia, WA. Single volume.

Wemple, B. C., J. A. Jones, and G. E. Grant. 1996. "Channel network extension by logging roads in two basins, western Cascades, Oregon." Water Resour. Res. 32(6): 1195-1207.

Wert, S.; Thomas B.R. 1981. Effect of skid roads on diameter, height and volume growth in Douglas-fir. Soil Sciences Society American Journal 45:629-632.

Wolman, M.G. 1954. "A method of sampling coarse river-bed material." Transactions American Geophysical Union. 35: 951 – 956.

State of Washington, Office of Financial Management. 2007. Official April 1, 2007 Population Estimates. (website: http://www.ofm.wa.gov/pop/april1/)

APPENDIX 1. RESULTS OF CLEAR CREEK ROADS PROJECT-LEVEL ANALYSIS

The following table provides a summary of the analysis completed on roads included in the Clear Creek Roads Project. This table includes each road considered within the project, the section of applicable road from the Gifford Pinchot National Forest Roads Analysis (USDA 2002), the recommended management for that section of road in the Roads Analysis, and the results of the project-level analysis completed for this project. The final recommendations from this analysis were used to develop the proposed action for this project. Additional information regarding the risks, current uses, and future needs for each road can be found in the "Notes" column.

Legend
*Recommended Management Information found in Forest Roads Analysis where DE = Decommission, CS = Close and Stabilize, SO = Seasonally Open, OH = Open to High Clearance Vehicles.
** Current Maintenance Level Information found in INFRA database where 1 = BASIC CUSTODIAL CARE (CLOSED), and 2 = OPEN TO HIGH CLEARANCE VEHICLES.

Forest Service Road Number	Forest Roads Analysis (USDA 2002)				Clear Creek Roads Project-Level Analysis					
	Begin Mile Post	End Mile Post	Length (miles)	Recom. Mgmt*	Begin Mile Post	End Mile Post	Length (miles)	Current Maint Level**	Final Project-level Recommendation (Proposed Action)	Notes (includes specific recommendations, any changes from Forest Roads Analysis, and reasons for changes)
2500840	0	1	1	DE	0	1	1	1	Decommission	Concurred with Forest Roads Analysis Recommendation.
2500846	0	0.2	0.2	DE	0	0.2	0.2	1	Decommission	Concurred with Forest Roads Analysis Recommendation.

Forest Service Road Number	Forest Roads Analysis (USDA 2002)				Clear Creek Roads Project-Level Analysis					
	Begin Mile Post	End Mile Post	Length (miles)	Recom. Mgmt*	Begin Mile Post	End Mile Post	Length (miles)	Current Maint Level**	Final Project-level Recommendation (Proposed Action)	Notes (includes specific recommendations, any changes from Forest Roads Analysis, and reasons for changes)
2500910	0.4	0.6	0.2	CS	0.4	0.6	0.2	2	Decommission	This road is used by WDFW for fish surveys as well as recreational users. The last 0.2 miles of this road pose a safety hazard for vehicles, and it also provides erosion and sediment delivery into the Muddy River. Recommend decommissioning the end of this road to improve drainage of hillslope and prevention of vehicular traffic. Recommend treating to maintain walk-in access to the river.
2500970	0	0.5	0.5	CS	0	0.5	0.5	2	Decommission	This road was found to have little recreational use and future need for this road, outside of some commerical thinning opportunities that can be addressed within the next few years. Recommend decommission of this road upon completion of thinning activities.
2559100	0	2.4	2.4	SO	1.4	2.4	1	2	Decommission	The bridge over Elk Creek (location at Mile Post 1.4) is unsafe to human or motorized access and will be removed in the Summer of 2008. At that time, the remaining 1 mile of this road will be cutoff from the Forest System Road network. Since this road is located on a known geohazard landslide area and will no longer be maintained in the future due to loss of access over Elk Creek, this road is recommended for decommission along with the 2559103 which is located off this road.
2559103	0	0.7	0.7	DE	0	0.7	0.7	2	Decommission	Access to this road will no longer be available after the summer of 2008 (see 2559100) and is located on a known geohazard landslide. This road is recommended for decommission due to loss of access.
2573460	0	0.9	0.9	DE	0	0.9	0.9	2	Decommission	Concurred with Forest Roads Analysis Recommendation.

Forest Service Road Number	Forest Roads Analysis (USDA 2002)				Clear Creek Roads Project-Level Analysis					
	Begin Mile Post	End Mile Post	Length (miles)	Recom. Mgmt*	Begin Mile Post	End Mile Post	Length (miles)	Current Maint Level**	Final Project-level Recommendation (Proposed Action)	Notes (includes specific recommendations, any changes from Forest Roads Analysis, and reasons for changes)
2573464	0	0.3	0.3	CS	0	0.3	0.3	2	Decommission	Recommended for decommission, since the access (2573460) would be cutoff as a result of other recommendations that concur with Forest Roads Analysis. Aquatic rating of this road was increase from medium to high based on severe erosion and risk of culvert failures
2575000	1.9	3.9	2.0	DE	1.67	3.90	2.23	2	Decommission	Concurred with Forest Roads Analysis Recommendation. This road has many areas with severe erosion problems that would benefit from decommissioning. Timber management will be needed near mile post 1.7 within the next few years, so it is recommended that treatment of this stretch located near the 2575200 junction be completed after timber management is complete.
2575050	0	0.5	0.5	DE	0	0.5	0.5	2	Decommission	Concurred with Forest Roads Analysis Recommendation. This road has no need in the foreseeable future.
2575056	0	0.3	0.3	DE	0	0.3	0.3	2	Decommission	Concurred with Forest Roads Analysis Recommendation. This road has no need in the foreseeable future.
2575200	0	0.9	0.9	DE	0	0.9	0.9	2	Decommission	Concurred with Forest Roads Analysis Recommendation. This road has severe erosion problems and is not currently driveable. This recommendation for decommissioning was verified and should be implemented with resource protection mitigations.

Forest Service Road Number	Forest Roads Analysis (USDA 2002)				Clear Creek Roads Project-Level Analysis					
	Begin Mile Post	End Mile Post	Length (miles)	Recom. Mgmt*	Begin Mile Post	End Mile Post	Length (miles)	Current Maint Level**	Final Project-level Recommendation (Proposed Action)	Notes (includes specific recommendations, any changes from Forest Roads Analysis, and reasons for changes)
2586000	0	3.2	3.2	SO	1.5	3.2	1.7	2	Decomission, but leave a foot path on road bed for hunters.	This road is in severe risk of failure due to the culvert collapse at Mile Post 1.5. This culvert is also presenting a barrier to fish migration, thus the cost to upgrade this crossing would be extremely high, and the road provides little access to road-requiring Forest resources. There are 2 timber stands with upcoming thinning needs beyond the collapsed culvert, i.e. in this section of road. These stands can be thinned prior to road decommission. This road has historically been used by walk-in hunters, thus leaving a walking path on stable sections this road is recommended.
8800717	0	0.6	0.6	SO	0	0.6	0.6	2	Decommission	This road provides access to a large dispersed camp site at upper entrance to Dead Horse Cave, which provides habitat for unique cave adapted species that can be reduced or eliminated from the cave with excessive human use. Vehicular access to the cave opening provides easy access and encourages overuse and vandalism, affecting the cave resources, thus the recommendation is to limit vehicles to parking immediately off Forest Service Road 88.
9039250	0	0.4	0.4	None	0	0.4	0.4	1	Decommission	This road was not analyzed in the Forest Roads Analysis for an unknown reason. This road is recommended for decommision since it increases harassment to wildlife and provides access to the Muddy River riparian area where tree removal and garbage dumping has occurred.
9039350	0	0.3	0.3	SO	0	0.3	0.3	2	Close with year-round gate after private road junction	This road provide access to Private land and the USGS Gaging Station on the Muddy River. No easement was found for use of this road, but searches may not have been exhaustive. Recommend gating this road to prevent further

Forest Service Road Number	Forest Roads Analysis (USDA 2002)				Clear Creek Roads Project-Level Analysis					
	Begin Mile Post	End Mile Post	Length (miles)	Recom. Mgmt*	Begin Mile Post	End Mile Post	Length (miles)	Current Maint Level**	Final Project-level Recommendation (Proposed Action)	Notes (includes specific recommendations, any changes from Forest Roads Analysis, and reasons for changes)
										resource and road damage.
9039620	0	2.7	2.7	DE	1.3	2.7	1.4	2	Close with year-round gate	This road provides ample recreational opportunities within the first 1.0 mile, but is also located in the Deer and Elk Winter Range. Curently, this road has a gate that is managed seasonally so that people can camp during the summer months. Insuffient data was collected to justify decommission, since the road is inaccessible beyond 1.3 miles. Thus, the current recommendation is to close the road beyond Mile Post 1.3 to be year round and collect additional information in the future to reassess the need for decommission.
9300150	0	3.6	3.6	DE	0	3.6	3.6	2	Decommission	This road was found to be heavily used by recreational users, particularly in the first 1.0 mile. The road was also found to have severe erosion damage and is considered to have little future need for timber management beyond the next few years. Recommendation is to decommission the entire length of road to include the use of resource protection mitigations. Timber management should be completed prior to decommission activities.
9300151	0	0.4	0.4	DE	0	0.4	0.4	1	Decommission	This road was found to already be decommissioned on the ground, but it is still considered "on" the Forest Service System. Recommendation is to change the roads inventory to reflect this road as being "Decommissioned."

Forest Service Road Number	Forest Roads Analysis (USDA 2002)				Clear Creek Roads Project-Level Analysis					
	Begin Mile Post	End Mile Post	Length (miles)	Recom. Mgmt*	Begin Mile Post	End Mile Post	Length (miles)	Current Maint Level**	Final Project-level Recommendation (Proposed Action)	Notes (includes specific recommendations, any changes from Forest Roads Analysis, and reasons for changes)
9300153	0	0.2	0.2	CS	0	0.2	0.2	1	Decommission	This road was found to already be decommissioned on the ground, but it is still considered "on" the Forest Service System. Recommendation is to change the roads inventory to reflect this road as being "Decommissioned."
9300154	0	0.2	0.2	DE	0	0.2	0.2	1	Decommission	This road was found to already be decommissioned on the ground, but it is still considered "on" the Forest Service System. Recommendation is to change the roads inventory to reflect this road as being "Decommissioned."
9300157	0	0.1	0.1	DE	0	0.1	0.1	1	Decommission	This road was found to already be decommissioned on the ground, but it is still considered "on" the Forest Service System. Recommendation is to change the roads inventory to reflect this road as being "Decommissioned."
9325000	0	3.2	3.2	OH	1.88	3.2	1.32	2	Decommission	This road has severe erosion problems beyond Mile Post 1.8 due to lack of maintenance. The only needs for timber management in the foreseeable future are found within the first 1.8 miles of road, thus the eroding section of road is recommended for decommission. Treatment is recommended to start at approximate Mile Post 1.88 or just beyond a wide section of road that provides a view of Spencer Ridge. This spot would make a nice disperse camping area and is therefore recommended to be left open with road obliteration beyond that point.
9325080	0	0.6	0.6	DE	0	0.6	0.6	2	Decommission	Concurred with Forest Roads Analysis. This road has some upcoming timber management need, but this work can be completed prior to road decommission.

Forest Service Road Number	Forest Roads Analysis (USDA 2002)				Clear Creek Roads Project-Level Analysis					
	Begin Mile Post	End Mile Post	Length (miles)	Recom. Mgmt*	Begin Mile Post	End Mile Post	Length (miles)	Current Maint Level**	Final Project-level Recommendation (Proposed Action)	Notes (includes specific recommendations, any changes from Forest Roads Analysis, and reasons for changes)
9300cb	-	-	-	None	0	0.15	0.15	NA	Decommission	This road was not analyzed in the Forest Roads Analysis because it is not a system road. This road was found to be providing vehicular access to the stream bank of Clear Creek, where people are continuing to drive down the banks of Clear Creek to user-road 9300g. Riparian vegetation needs to be established in this area for the improvement of stream bank erosion, water quality, and fish habitat. Recommendation is to prevent vehicular access beyond Forest Service Road 93, and to decompact areas in need to allow vegetation to grow. Walk-in access could be provided to allow for dispersed camping.
9300g	-	-	-	None	0	0.5	0.5	NA	Decommission	This road was not analyzed in the Forest Roads Analysis because it is not a system road. This road was found to be providing vehicular access to the stream bank of Clear Creek, where people are continuing to drive up the banks of Clear Creek to user-road 9300cb. Riparian vegetation needs to be established in this area for the improvement of stream bank erosion, water quality, and fish habitat. Recommendation is to provide a small parking area immediately off Forest Service Road 93 and then limit access beyond that point to walk-in only. Decompaction of soil can be used in areas of need to allow vegetation to grow

Forest Service Road Number	Forest Roads Analysis (USDA 2002)				Clear Creek Roads Project-Level Analysis					
	Begin Mile Post	End Mile Post	Length (miles)	Recom. Mgmt*	Begin Mile Post	End Mile Post	Length (miles)	Current Maint Level**	Final Project-level Recommendation (Proposed Action)	Notes (includes specific recommendations, any changes from Forest Roads Analysis, and reasons for changes)
9300 picinic	-	-	-	None	0	0.62	0.62	NA	Decommision	This road was not analyzed in the Forest Roads Analysis because it is not a system road. This road was found to be providing vehicular access to the Muddy River, where people are continuing to drive up the Muddy River Floodplain. Riparian vegetation needs to be established in this area for the improvement of stream bank erosion, water quality, and fish habitat. Recommendation is to eliminate all vehicular access to this area at Forest Service Road 25. No parking area will be left, since there is already a parking area at the Muddy River Day Use Area. Decompaction of soil can be used in areas of need to allow vegetation to grow.

APPENDIX 2.SUMMARY OF SUBSTANTIVE COMMENTS

Comment 1 (Dan Barnes):
While the campsite to the north [of FR 2500910] continues to erode, we have seen little to no damage at the end of the road at 0.2 miles area proposed for decommission. Clear Creek has changed course in this area greatly within the last year. However, not since the winter of '96 has there been much damage nor erosion to the last 0.2 miles of 2500910. While I cannot speak to the scientific analysis or findings; I don't see this road as causing negative impact to the environment; the driving force behind this project.

> **Response:** The primary reason to decommission FSR 2500910 is safety reasons; the short section of road to be decommissioned is a steep road in poor condition and there is no safe way to turn around at its far end. Additionally, this road incurs surface erosion as water seeps out of the exposed cutbank and flows down the road bed to a steep drop off at the end of the road. This erosion and drainage problem was identified in site visits conducted during the project-level road analysis (EA, Appendix 1, page 54). As disclosed in the EA, the original proposal was to completely decommission Forest Service Road 2500910 which would have included 0.6 miles. The proposal instead is to only decommission the last 0.2 miles where the turn-around is a safety issue and resource damage is occurring. Changing the proposed action in this way still allows for stream access and dispersed camping (EA, page 8).

Comment 2 (Tom Linde, Annabelle Lueders):
There is no significant survey information indicating erosion problems exist on these roads. Most roads that this project addresses do not contribute to erosion and therefore do not need to be decommissioned.

> **Response:** As disclosed in the EA, site visits were conducted during the project-level roads analysis to ensure the proposed action reflected the current road condition as well as the potential for needing the road in the future. The survey information collected during this analysis documented erosion problems on these roads. The final recommendation that resulted from the project-level roads analysis was documented in Appendix 1 of the EA, and in some cases the "Notes" column indicates where erosion problems were found (EA, page 2). In other cases, the current road condition and extent of the erosion problems were documented in field notes compiled by the interdisciplinary team members (EA, pages 1, 2 and Appendix 1). In general terms, the erosion problems on these roads were summarized in the EA as sediment delivery to streams that is generated from several sources. The principal sources are surface gravel from exposed cut-and fill-slopes, side-cast and fill-slope failures, and undermining of roadbeds due to gully erosion associated with insufficient drainage. Additionally, a lack of road maintenance has increased the risk of culvert failure, which could provide additional sediment delivery to streams (EA, pages 19, 20).

Comment 3 (Tom Linde):
Roads 9325000, 2575000, 9300157 provide public access to the Spencer ridge roadless area and should not be decommissioned or have restricted public access.

Response: The commenter did not state any reasons why these roads should continue to access the Spencer Ridge Roadless Area. Walk-in access to the roadless area would still be available after the roads are decommissioned or closed.

Comment 4 (Tom Linde)
Road 2559100 should be closed at the first creek crossing.

Response: No reason was given by the commenter for proposing a different closure. The particular location was determined because the Elk Creek bridge was going to be removed. The Forest Service interdisciplinary team did evaluate dispersed camping as a significant issue. The team made changes to the proposal which shortened the length of total decommissions/ closures of several of the roads to allow for more dispersed camping (EA, page 8). In addition, an alternative was considered that would further reduce the total miles of decommissions/closures and allow for even more dispersed camping, but was not carried forward because the Monument Manager felt that several other concessions were made for the purpose of dispersed camping and the other roads identified for decommission/closure were needed for resource protection (EA, page 16).

Comment 5 (Annabelle Lueders, Tom Linde)
Evaluation of the loss of public accessibility to the forest is inadequate. The remaining roads [besides 9325080, 2575050, 2575200] on this project should not be decommissioned or closed to public access. These roads are important to public access and recreational activities. With public use increasing recreational access is more important now and should be a major consideration before any road is decommissioned or closed. By closing these roads people with disabilities will be impacted to an unreasonable degree. Impacts from displaced users on other areas need to be evaluated.

Response: Public access was listed as a significant issue in the Clear Creek Roads Project, and a driving force behind many changes to the proposal, including the reduction of miles closed or decommissioned in the planning area (EA, page 5). The majority of roads included in this project were identified for decommissioning or closure in the Gifford Pinchot National Forest Roads Analysis (USDA 2002) (EA, page 1). Public access and recreational opportunities were factors considered during the forest roads analysis process (EA, page 1). A project-level roads analysis was also completed as part of the Clear Creek Roads Project and recommendations were updated based on current needs and access issues (EA, pages 1, 2). An appendix explaining changes from the forest roads analysis is included as part of the EA.

Access for people with disabilities was a factor considered in the Gifford Pinchot National Forest Roads Analysis (USDA 2002) as well as the project-level roads analysis (EA, page 1). Access will be reduced, but based on observation by Forest Service staff, it is considered to be a small proportion of the recreation visitors on this Forest (EA, page 44).

The social impact analysis that was completed for this project did include a discussion of cumulative effects and displaced users elsewhere on the Forest (EA, page 45).

Comment 6 (Tom Linde)
These roads access commercial thinning stands and should remain open in order to allow future harvest and recovery of investments in the stands. Without the roads it will be economically impossible to conduct harvest.

Response: A project-level roads analysis was done for the Clear Creek Roads Project EA that determined future access needs for vegetation management and the interdisciplinary team worked in collaboration with internal Forest Service departments such as silviculture, pre-sale, and the timber stand improvement/stewardship coordinators (EA, page 2). This process specifically identified roads that would be needed by these resources in the next 5 to 20 years. Several roads access plantation stands and were identified as having commercial and precommercial thinning needs within the next 5 years. Stands needing commercial thinning in the next 5 years were included in the upcoming Wildcat Timber Sale, which is scheduled to be completed prior to implementation of these roads. Stands needing precommercial thinning were either determined to be accessible by walking in to the stands or work would scheduled to be completed prior to road decommission. No other concerns were identified (EA, page 2).

Comment 8 (Tom Linde)
Risking bull trout and their habitat is an unacceptable result of this project. I see the Washington Department of Fish and Wildlife have not been involved in evaluation of this project and impacts on Bull Trout and their habitat. They are a major player and must be involved.

Response: While short-term effects such as increases in suspended sediments and fine sediments are expected during implementation of road decommissioning and culvert replacement/ removal and following the first winter flush, these are expected to be within background levels. In addition, implementing the road decommissions/closures will have a long-term decrease in stream sedimentation and a beneficial effect to bull trout (EA, pages 29, 30; DN, page 10). Beneficial effects to fisheries from closing these roads include: reduced stream sedimentation and reduced impacts to riparian vegetation from vehicles resulting in increased shade and cooler summer stream temperatures, increased supply of large woody material and delivery mechanisms to fish bearing streams, removal of at least one physical migration barrier, and reduction in overall resource damage from user-created roads (EA, page 29).

Consultation was conducted with the US Fish and Wildlife Service (USFWS), the agency responsible for resident fish species. The activities are covered under the USFWS *Biological Opinion and letter of Concurrence USDA Forest Service, USDI Bureau of Land Management and the Coquille Indian Tribe for Programmatic Aquatic Restoration Activities in Oregon and Washington That Affect ESA-listed Fish, Wildlife, and Plant Species and their Critical Habitats* (EA, page 48; DN, page 10).

Comment 10 (Tom Linde)
There is no evaluation and priority rating of roads on the Mt. Adams and Mt. St. Helens ranger districts indicating these are the priority road decommisssioning projects on the forest.

Response: The Gifford Pinchot National Forest Roads Analysis that was completed in 2002 did prioritize road recommendations across the Forest. In addition, in March 2005, the Forest Service completed the Pacific Northwest Region Aquatic Restoration Strategy (Strategy) which used a prioritization process to identify basins that area a "high" priority for restoration. Through this process, the Lower Columbia River Basin was identified as a high priority basin of which the Gifford Pinchot National Forest has several watersheds that contribute. Three priority watersheds were selected in conjunction with partners in an effort to generate funding and mechanisms to address the Strategy. One of these top three watersheds is the upper Lewis River subbasin, which specifically includes the Muddy River watershed as part of the "Bull Trout Area." This document specifically highlights the need to decommission several of the roads included in the project, specifically FSR 2586000, FSR 9300150 and associated spurs, 2575000, 25752000, 2500910, 2500970, 9039250, 9039620, and the 3 non-system (user-created) roads (USDA 2008, page 12). With this focus in mind, planning began on the Clear Creek Roads Project (EA, page 1).

Comment 11 (Tom Linde)
Control of noxious weeds will be happened by removal of these roads.

Response: Prevention measures to prevent the introduction and spread of noxious weeds are included in the project description and listed on pages 15 and 16 of the EA. A noxious weed risk assessment was conducted and included in the analysis on pages 46 and 47 of the EA.

Comment 12 (Tom Linde)
No road should be decommissioned. They should be left in place and blocked and planted to Wildlife forage species. The roads provide an ability to manage the stands in these areas to improve wildlife habitats and create a multi-layer and diverse vegetative forest environment.

Response: The analysis in the EA shows that the road closures and decommissions will benefit the majority of wildlife species to some degree (EA, page 42). See also response to comment 6 and its discussion of future vegetation management.

Comment 15(Tom Linde)
These roads provide access for wildfire suppression and should remain open.

Response: A project-level roads analysis was done for the Clear Creek Roads Project EA. This analysis evaluated future access needs for fire suppression and determined that this project would not cause any access concerns (EA, page 2).

Comment 16 (Tom Linde)
User created roads should be evaluated and determined if they are serving an important recreational public access function.

Response: The user-created roads identified as part of the Clear Creek Roads Project were analyzed for their function and use. Specifically, Forest Service recreational staff recommended leaving a parking spot at the top of user-created 9300g instead of eliminating all access on this road because it is a popular recreational location for dispersed camping (EA, page 8). In addition, an alternative considered but eliminated from detailed study evaluated leaving ¼ mile of user-created road 9300picnic open for a camping/ parking area. This option was not carried forward because resource concerns outweighed access concerns (EA, page 16).

Comment 17 (Tom Linde, Annabelle Lueders)
Maintenance should be a priority to correct erosion, drainage issues and substand design issues. If the Forest Service adequately maintained and/or repaired roads in a timely manner, erosion would be less of an issue.

Response: As disclosed in the EA, the Forest has a minimal budget for road maintenance (EA, pages 24, 25). Roads *are* prioritized for annual maintenance based on use and access needs. The limited budget for road maintenance was one consideration in determining whether roads would be recommended for road closure or decommissioning during the Gifford Pinchot National Forest Roads Analysis that was done in 2002.

Comment 18 (Tom Linde)
Disturbance of riparian vegetation has not been surveyed or established as a critical element From [sic]. Individual site surveys need to be done to evaluate the dispersed recreational impacts be [sic] decommissioning is allowed.

Response: Field surveys were done during the project-level roads analysis to develop the proposed action as well as analyze the beneficial and negative effects of implementing the road closures, decommissions or culvert projects (EA, page 2). Riparian vegetation that is located within the road prism of both system and non-system roads will be disturbed during the proposed activities, but these impacts are not expected to extend beyond the road prism. Decommission activities will impact dispersed camping in that vehicular access to riparian areas would be reduced. The net effect of this action would create a long-term improvement on riparian vegetation by preventing vehicular traffic from removing vegetation and compacting bare soils. By allowing riparian vegetation to establish and thrive in these areas, a long-term reduction in stream temperature is expected (EA, pages 25, 26).

Comment 19 (Tom Linde)
A loss of any dispersed recreation sites or access point should be mitigated by creating alternative sites or access points for the public.

Response: This is not a requirement for closing or decommissioning roads. A social impact/ recreation analysis concluded that the decrease in dispersed recreational opportunities was not significant with this decision (EA, page 44).

Comment 21 (Tom Linde)
The issue of public sanitation, riparian vegetation impacts and trash can be addressed using current Forest Service regulations and restricting access for these reasons is not a valid concern.

Response: Using Forest Service regulations has not been completely effective in the past in dealing with the problems associated with these roads. For example, the non-system road 9300 picnic was closed off from public access in the past, yet people continue to drive vehicles into this area. Furthermore, the primary reason for this project is to improve aquatic, riparian, and watershed health, as well as to reduce the financial burden of too many roads in need of extensive road maintenance and reconstruction in light of a decreasing road maintenance budget. No Forest Service regulation specifically addresses these underlying issues.

Comment 22 (Chad Martin, Misun Bishop)
I request that you keep the 9300picnic area open one week each summer for the T-2 camp. It is difficult to find an equivalent campsite. A good idea would be to put up a gate and only allow those with a special use permit.

Response: The 9300picnic road is a user-created road and was never meant to be a dispersed camping area. This road was found to be providing vehicular access to the Muddy River, where people are continuing to drive up the Muddy River Floodplain. Riparian vegetation needs to be established in this area for the improvement of stream bank erosion, water quality, and fish habitat (EA, Appendix 1, page 60). The Forest Service did consider leaving ¼ mile of user-created road 9300picnic open for a camping/ parking area; however, the responsible officials felt that many concessions were incorporated into the proposed action that allowed for more dispersed camping and recreational access and that leaving portions of user-created road 9300picnic would not meet the intent of the restoration project (EA, page 16).