United States Department of Agriculture

Forest Service

2007

Environmental Assessment

2007 Clackamas Restoration Projects

Clackamas River Ranger District, Mt. Hood National Forest
Clackamas and Marion Counties, Oregon
The project is located throughout the Clackamas River watershed.

For Information Contact: Tom Horning
595 NW Industrial Way, Estacada, OR 97023
503.630.6861
thorning@fs.fed.us

CHAPTER 1 - PURPOSE AND NEED FOR ACTION

Introduction

This Environmental Assessment (EA) includes many wildlife, fish habitat and water quality restoration projects. In 1994, the Northwest Forest Plan (NFP) recognized the need for Watershed Restoration. "Watershed restoration will be an integral part of a program to aid in recovery of fish habitat, riparian habitat, and water quality. Restoration will be based on watershed analysis and planning." (NFP p. B-30) "The most important components of a watershed restoration program are control and prevention of road-related runoff and sediment production, restoration of the condition of riparian vegetation, and restoration of in-stream habitat complexity." (NFP p. B-31)

The Mt. Hood National Forest (Forest) has accomplished numerous restoration projects in the past few years including road decommissioning, culvert replacement, in-stream projects and riparian planting. The watershed analyses recommended these restoration actions and many others that have not yet been funded or implemented.

This assessment also includes off-Forest restoration projects because it is recognized that many serious restoration needs occur off-Forest. There are now options for funding this type of work.

Desired Future Conditions - The following statements represent desired conditions derived from the Forest Plan as amended.

- **Watersheds** have hydrologic and sediment regimes that function within their ranges of natural variability. They contain a network of healthy riparian areas and streams.
- **Streams** provide a diversity of aquatic habitat for fish and other stream-dwelling organisms. They offer sufficient quantities of large woody debris; they have clean and abundant spawning gravel; and they have stable banks that are well vegetated and have cool water.
- **Riparian areas** contain plant communities that are diverse in species composition and structure. They provide summer and winter thermal regulation; nutrient filtering; and have appropriate rates of surface erosion, bank erosion, and channel migration. They also supply coarse woody debris sufficient to sustain physical complexity and stability. Riparian reserves provide mature forest connectivity.
- A **transportation** system allows safe access through the Forest where appropriate, and it is carefully designed and maintained to minimize impacts to aquatic and terrestrial forest resources.
- Landscapes contain a diversity of **habitats**.

Purpose and Need

The need for wildlife habitat, fish habitat and water quality restoration is evident when the above desired conditions are compared to existing conditions at site-specific locations:

- The Forest has streams and rivers that provide habitat for important stocks of fish, many of which are listed under the Endangered Species Act. Many of the streams and rivers also provide water for human uses. Certain watersheds are designated as Key Watersheds where restoration efforts are a high priority.
- Hydrologic regimes, riparian vegetation, aquatic habitats, and wildlife habitats have been altered by roads, timber harvest and off-highway vehicles.
- Some roads have culverts that block or impede fish passage.
- Some streams have low levels of in-stream large woody debris, inadequate recruitment of future woody debris, and poor aquatic habitat conditions.
- Some areas have high open-road density. Some roads have been closed but the closure structure has been vandalized or circumvented and vehicles are using roads that should be closed. Some vehicles drive off authorized roads causing damage to watersheds. High levels of unregulated motorized use results in harassment to wildlife.

The **purpose** of this proposal is to repair specific problem areas that have been identified as the most urgent. The objective is to have healthy functioning watersheds that provide clean water, quality fisheries and wildlife habitats. Another objective is to provide a safe transportation system that meets resource objectives while providing access through the Forest. It is recognized that it may take many years of action and many years of "healing time" to totally restore these resources. The projects described below are one step in the process of moving toward the desired conditions.

Projects have been grouped by type to more clearly and efficiently discuss objectives, issues and effects. The following section has more detail on the specific objectives for each project type.

Fish Passage/Culverts

Some roads have culverts or other structures that block or impede fish passage or are not large enough to accommodate a 100-year flood event and associated sediment and debris. These projects involve the design and installation of structures that allow passage of fish and other channel related material. There is an urgent need to upgrade these structures that would improve fish passage on many miles of streams. There are additional miscellaneous culverts that would be replaced during road repairs or removed during road decommissioning that would also help meet this need.

In-stream

In-stream conditions are sometimes not optimal for fish. Streams can be improved by replacing lacking elements or by repairing existing features. Projects include the installation of logs or boulders in streams and rivers and the creation of side channels.

Road Repair

Some roads have deteriorated, are causing resource damage, or are unsafe. Roads would be

repaired where cost, level of use and resource considerations warrant. This includes heavy maintenance and deep patch repairs to stabilize cracked or sinking road surfaces. Projects may also include the placement of additional cross drain culverts, increasing existing culvert size and the stabilization of cut and fill slopes.

Road Decommissioning

Some roads would be decommissioned where they pose resource risks and are no longer needed. This may involve the removal of gravel surfacing and culverts if present, and the deep scarification of road surfaces. It may also include pulling back unstable fill slopes to prevent future landsliding. Berms would be constructed to block vehicular access and disturbed soils would be revegetated.

Road Closure

Some roads would be closed to public access by the placement of berms or other devices. Also included is the repair of existing closure devices that have proven to be ineffective.

Unauthorized Vehicle Damage

Sometimes vehicles drive where they shouldn't. Areas that are being damaged by unauthorized vehicles including Off Highway Vehicles (OHV) would be blocked with boulders and disturbed areas would be revegetated where appropriate.

Management Direction – The proposed action has been designed to meet the goals and objectives of the documents listed below. This assessment is tiered to the Environmental Impact Statements and the listed plans are incorporated by reference.

- The Mt. Hood National Forest Land and Resource Management Plan as amended (referred to as the **Forest Plan**). The Forest Plan contains standards and guidelines applicable to this project. Consistency is addressed in each resource section.
- The Mt. Hood National Forest Land and Resource Management Plan Final Environmental Impact Statement. This document discusses environmental effects for Forest-wide programs and sets the stage for project level analysis.
- The Forest Plan was amended by the Record of Decision and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. (hereafter referred to as the **Northwest Forest Plan** or NFP). The NFP contains standards and guidelines for Matrix, Riparian Reserves and Late-Successional Reserves. Consistency is addressed in each resource section.
- The Northwest Forest Plan Final Supplemental Environmental Impact Statement. This document discusses environmental effects for Region-wide programs and sets the stage for project level analysis.
- The Forest Plan was amended by the 2004 Record of Decision to Clarify Provisions Relating to the Aquatic Conservation Strategy.
- The Forest Plan was amended by the 2005 Record of Decision for Preventing and

Managing Invasive Plants.

- The Forest Plan was amended by the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines.
- The Forest Plan was amended by the 2004 Record of Decision to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines. Many species were removed from the requirements of the Survey and Manage Standards and Guidelines and placed on sensitive species lists. A subsequent court case set aside parts of the 2004 Record of Decision and reinstated the 2001 Record of Decision except for culvert removal or replacement projects and riparian and stream improvement projects (October 11, 2006, modified injunction in Northwest Ecosystem Alliance et al. v. Rey et al., Civ. No. 04-844 P (W.D. Wash)).
- The Forest Plan was amended by the 2007 Record of Decision To Remove the Survey and Manage Mitigation Measure Standards and Guidelines from Forest Service Land and Resource Management Plans Within the Range of the Northern Spotted Owl. This decision removed the survey and manage requirements from all of the National Forests' land and resource management plans (LRMPs) within the range of the northern spotted owl. The court in *Northwest Ecosystem Alliance et al v. Mark Rey et al, Civ. No. 04-844, Western District of Washington* has not yet granted the government's motion to lift the modified October 11, 2006 injunction. The road related projects in this EA never required surveys under any of the plans because they they are not habitat disturbing activities. The other projects (culvert replacement/removal and riparian and stream improvmenet projects) do not require surveys because they fall within the exceptions listed in the modified October 11, 2006 injunction.

Proposed Action

The proposed action includes many projects. The objectives for the projects are discussed in the previous section. The proposed action is Alternative B and tables listing each project can be found in Chapter 2. Site-specific maps and detailed project descriptions can be found in the analysis file.

Public Involvement

The Forest publishes a schedule of proposed actions (SOPA) quarterly. The project first appeared in January 2007. A letter to request public input for this project was sent in March 2007 to request comments.

Issues

1. Impacts to water quality and fish habitat. There is a concern that ground disturbance associated with restoration projects, particularly where they happen close to streams and rivers, may result in short-term sedimentation and increased turbidity until erosion control measures take effect.

2. Restrictions to vehicle access. Many visitors use motorize vehicles and object to road closures and other projects that restrict their access to the Forest.

CHAPTER 2 - MANAGEMENT ALTERNATIVES

Alternative A (No Action)

Alternative A is the "no action" alternative. Under this alternative, no restoration activities would occur.

Alternative B (Proposed Action)

The following restoration projects would be implemented. Individual projects are displayed in tables below organized by general restoration project type.

Project Type: **Fish Passage/Culverts**

Some road crossings or other structures block or impede fish passage. These projects involve the design and installation of a better structure.

Project Name Road/Creek	**Notes**
Rd. 45/South Fork Clackamas River	
Rd. 6350/South Fork Happy Creek	
Rd. 6360/Happy Creek	
Rd. 4611/Winslow Creek	
Rd. 4672/Lowe Creek	
Orient Road/Tickle Creek Trib.	DP079 – Off Forest
Redland Road/Little Clear Creek	CL088 – Off Forest
Mosier Creek	CL068 – Off Forest, BLM trail

Project Type: **In-stream/Riparian**

Streams would be improved by replacing lacking elements or repairing problem areas.

Project Name	**Notes**
Concordia Cedars	Side channel – Off Forest
Shoe Island	Side channel – Off Forest
Fisherman's Bend	Side channel – Off Forest
Deep Creek	Restore fish passage at weir – Off Forest, DPD01
Middle Clear Creek	Ford rehab. – Off Forest, CL069A

Clackamas/North Fork Reservoir	Logs and Boulders. Part on Forest and part on BLM and PGE.
Upper Clackamas	Logs and boulders, Two rivers to 4650 bridge
Tar Creek	Side channel along Clackamas near Tar Creek
Two Rivers	Side channel along Clackamas below confluence with Collawash River
Road 4650	Side channel along Clackamas near road 4650
Hot Springs RM 3.2	Side channel along Hot Springs Fork, control structure at entrance of existing side channel
Hot Springs RM 2.7	Side channel along Hot Springs Fork, control structure at entrance of existing side channel
Hot Springs RM 3.0	Construct side channel
Hot Springs RM 2.5	Side channel along Hot Springs Fork, control structure at entrance of existing side channel
Big Creek Channel Restoration	Add wood, stabilize banks

Project Type: **Road Repair**

This includes heavy maintenance and deep patch repairs to stabilize cracked or sinking road surfaces. Projects would also include the placement of additional cross drain culverts, upgrading existing culverts and the stabilization of cut and fill slopes.

Project Name (Road Number)	**Notes**
Rd. 46	Shoulder degradation from OHV use parallel to road. Place boulders parallel to road, rebuild shoulder with pit run rock and revegetate disturbed area.
Rd. 63	MP 0 - 3.6, Deep patch repairs
Rd. 63	MP 8.9 - 12.6, Deep patch repairs, convert portions to aggregate.
Rd. 70	MP 0 - 6.02, Deep patch repairs and poly fabric overlays
Rd. 7010	MP 0 - 1.64, Deep patch repairs, convert portions to aggregate.
Rd. 6350	MP 0 – 3.25, Deep patch repairs, convert portions to aggregate.
Rd. 42	MP 23.8 – 26.66, Deep patch repairs.
Rd. 4671	MP 1.24 – 5.55, Deep patch repairs, convert portions to aggregate.

Project Type: **Road Closures and Decommissioning**

The 2003 Forest-wide Roads Analysis discusses recommendations for road closure and decommissioning on pages 40 and 41. The Roads analysis presented a table of Roads with Low Access Needs and High Environmental Risk on page 44. These roads are to be considered for decommissioning during project planning.

The Roads Analysis results provide a good broad perspective of the physical setting and potential resource impacts of any road segment. Although the data used was the best available, it is not a substitute for a field examination (Roads Analysis p. 40). Roads need to be examined

at a site-specific scale before deciding what to do with them. Some roads that score high because they are in a high risk landscape may not actually have any problems. Also the list of roads with "low access needs" does not imply that there are no needs. If a road is needed for a future thinning project, it may be appropriate to delay decommissioning until the areas that need thinning have been thinned.

The list of Roads with Low Access Needs and High Environmental Risk on page 44 of the Roads Analysis is reproduced in the Appendix with an explanation of the status of each. The roads were visited in the field to determine if there were any problems and the ages of the plantations were assessed for thinning opportunities. Some have been decommissioned already, some will be included in this document, and others will be deferred for future thinning and some will be allowed to overgrow naturally. The table below lists only the roads covered by this assessment. It should also be noted that many proposed decommissions are not on the high-risk list but are proposed for other reasons.

In this document, the term decommission, is used for Forest Service system roads to describe the process of removing them from the system. Decommissioning would mean different things for each road depending on site-specific conditions. Decommissioning could occur naturally as vegetation grows on the road and therefore no field work would be needed. In this case decommissioning would be a data-keeping exercise to remove the road from the Forest's road system data base. However, most roads would require some action. Decommissioning may involve the removal of gravel surfacing and culverts if present, and the deep scarification of road surfaces. It may also include pulling back unstable fill slopes where needed to prevent future landsliding. Berms would likely be needed to block vehicular access and disturbed soils would be revegetated. Some roads proposed for decommissioning are already closed with berms or other devices.

Road Closure may involve the installation of berms, gates or other barriers to block most motor vehicle access. It may also involve piling debris such as boulders and root wads to discourage vehicles from going around the closure.

Table of road closure and decommissioning

Road #	Existing	Proposed	Total Length	Tributary Roads	Notes
4500130	Open gate		0.55		
4500310	Non-func. gate	Berm	2.24	316	
4500320	Non-func. gate		1.17		Level 2
4500340	Non-func. gate	Berm	3.89	055, 350,360	
4510130	Non-func. gate	Berm	2.62		
4600031	over grown	Natural Decom. No action	0.14		
4600065	Open	Berm	0.6		
4600067	Open	Berm	0.65		
4600203	Open	Decom.	0.52		
4600230	GR over grown	Natural Decom. No Action			
4600242	Berm over grown	Natural Decom. No action	0.18		
4600265	Over grown	Natural Decom, No action	0.07		
4600267		Decom	0.14		
4600333	Non-func. GR	Berm	1.56	334	
4600350	Open	Decom	1.14	068, 069	past 370 jct.
4600360	Non-func. GR	Berm	0.63	063	
4610180		Berm	2.1		
4614167	Non-func. GR	Berm	0.44		
4614190	Non-func. GR	Berm	1.06		
4620019	Open	Decom.	0.16		Used for 2007 thin
4620022		Decom	0.22		culvert
4621		Decom	0.17		mp 0.2 to end, culvert
4621011	Berm	Decom	0.22		
4621013	Berm	Decom	0.1		
4621125	Berm	Decom	0.24		
4621170	Gate	Decom	0.11		
4621220	Gate	Decom	0.39		culvert
4630031	Berm, overgrown	Natural Decom, No action	0.44		
4630170	Non-func. gate	Berm	1.21	016,017	
4631017	over grown	Natural Decom, No action	0.1		

Road #	Existing	Proposed	Total Length	Tributary Roads	Notes
4645	Non-func. GR	Berm	2.42	135	past 130 jct. could close 4645 & 130 with one berm.
4645130	Non-func. GR	Berm	1.18		
4650130	Non-func. GR	Berm	1.19	135	place berm after last powerline access
4651	2 Gates Non-func. gates at each end	2 Gates	4.98	014, 115	
4651120	Non-func. GR w/berm	Reinforce Berm	1.18	130	parts access proposed wilderness
4651120	Non-func. GR w/berm	Decom	0.6		Decom end section, proposed wilderness
4651140		Decom	0.35		proposed wilderness
4651150	Non-func. gate w/berm	Reinforce Berm	0.24		
4651150	Non-func. gate w/berm	Decom	0.31		Decom end section,
4660140	Non-func. GR	Berm	4.95	150,160	
4660170	Non-func. GR	Berm	1.37	172	Move closure up the road to steeper side slope.
4660180	Non-func. GR	Berm	1.73	020	
4661160	Non-func. GR	Berm	3.01	018, 162, 164	
4661170	Non-func. GR w/berm	Reinforce Berm	1.11	019, 020	
4670130	Non-func. GR	Berm	1.96	140	Move closure up the road to steeper side slope.
4670170	Non-func. GR	Berm	1.14	180	
4670190	Non-func. GR	Berm	0.94	200	
4670216	Non-func. berm	Reinforce Berm	0.22		
4670218	Non-func. GR	Berm	0.41		
4671120		Decom	0.97		
4671130		Decom	0.79		
4671150		Decom	0.75		first part need for Upper Clack thin, decommission past plantation
4671153	Non-func. GR	Berm	1.0	155	
4671220		Berm	2.3	230	
4672147	Non-func. GR w/berm	Reinforce Berm	0.92		
4672162	Non-func. GR	Berm	0.96		berm 600 feet from junction
4672164	Non-func. GR	Berm	0.57		

Road #	Existing	Proposed	Total Length	Tributary Roads	Notes
4672180	Open	Berm	0.34		
4672182	open gate	Berm	0.13		
4672190	Non-func. GR w/berm	Reinforce Berm	2.08		
5700017		Berm			
5700120	Non-func. Gate	Gate			
5700120	Non-func. Gate	Berm	1.1		at 160 jct.
5700130	open	berm	0.23		
5700150	Non-func. Gate 120	Berm	0.65		See 5700120
5710120	Non-func. GR	Berm	0.91		
5710130	Non-func. GR	Gate	3.4	140, 148, 150, 023, 030, 029	140 is Level 2, administrative access
5710144	Non-func. GR	Berm	0.61	021	
5710180	Bypassed berm; old GR is down	Berm	0.99	183, 184	
5720120	Non-func. GR	Berm	2.89	011, 123, 125	
5810180	Open	Berm	2.79	182, 185	
5810203	Non-func. GR	Berm	0.75		
5830150	Non-func. GR with breached berm	Reinforce Berm	1.92	174, 180	mp .55
5830200	Non-func. GR	Berm	0.82		
5830230	Non-func. GR	Berm	0.36		
5830240	Non-func. GR	Berm	1.04		
5830260	Non-func. GR	Berm	1.24	265, 270	
6300015		Decom	0.16		need for thin
6300120	Open	Decom	0.22		dispersed camp
6300170	Breached berm	Reinforce berm	3.28	171, 173, 175, 176	need for thin, level 2
6300183		Decom	0.81		need for thin
6300185		Decom	0.22		access plt. ridgetop
6310011	overgrown	Natural Decom			
6310115	open	Decom			
6310120	Open	Decom			very close to river
6310125	Breached berm	Reinforce Berm	0.25		

Road #	Existing	Proposed	Total Length	Tributary Roads	Notes
6310162	Bermed	Reinforce Berm	0.62		Berm is at MP 0.2. Where a culvert was pulled. Could be breached with high-clearance vehicle.
6310210	Open	Berm	3.86	224, 230, 235	past 220
6310211	Open	Berm	1.66	212	
6310220	Non-func. gate	Berm	0.75		past 031
6310260		Berm	0.32		
6311012	Open	Decom			
6311120	Non-func. GR	Berm	0.7		
6311130	Guard Rail, overgrown	Natural Decom, No action			
6311140	Non-func. GR	Decom	1.08		
6311150	Non-func. GR	Berm	1.21	162	
6311160	Open	Decom	0.89		need for thin, trib of 150
6311170	Non-func. GR	Berm	0.94		
6321	Gate	Berm	0.9		Berm at MP 2.9
6330011		Decom	0.16		
6340120	Open	Decom			
6350029	Non-func. GR	Berm	0.52		
6350240	Non-func. gate w/berm	Reinforce Berm	1.51		
6350370	Non-func. GR	Berm	0.75		
6360	Non-func. Gate	Gate	3.91	120, 130, 140, 150	
7010140		Decom.			
7020120	Non-func. gate	Berm	3.88	130	
7040120	Non-func. gate	Berm	2.19	121	past Nohorn Cr.

Project Type: **Unauthorized Vehicle Damage**

Boulders placed to block access, revegetation of damaged areas.

Project Name	**Notes**
Huxley	
Fanton	
Eagle	
Oak Grove	
Sunstrip	

Two Rivers	
Hot Springs	
Bagby	
Riverside	
Farm	
Mile post 41	
Ladee	

Design Criteria and Best Management Practices

Seasonal Restrictions

1.1 **Erosion**: No off-road ground-based equipment would be used within Riparian Reserves between October 1 and June 15 to limit the likelihood of surface erosion and sediment transport and reduce the intensity and duration of anticipated short-term turbidity increases. This restriction may be waived with the concurrence of a soil, watershed or fisheries specialist, if long periods of dry weather are anticipated.

1.2 **Fish**: In-stream projects would only occur within work timing guidelines for in-stream projects set up by Oregon Department of Fish and Wildlife (ODFW) to protect incubating fish eggs and spawning fish. In-stream work would occur between July 15 through August 31. This restriction may be waived if ODFW biologists concur and a documented waiver is granted by NOAA Fisheries. This restriction applies only to the portion of a project where in-stream work is conducted.

1.3 **Deer and Elk**: To protect wintering animals, no project work that involves motorized equipment, helicopter/aircraft use, or blasting would be permitted between December 1st and March 31st.

1.4 **Peregrine Falcon:** No mechanized operations that produce sound above the ambient noise level of the area would be permitted from January 1st to July 31st. These restrictions may be waived if the nest site is unoccupied or if nesting efforts fail and there is not possibility of re-nesting. Documentation of nesting failures can be finalized no earlier than June 30th due to the possibility of re-nesting. This restriction applies to the following projects: repair of road 63 (mile post 0 to 3.6), decommission of road 4621170, closure of road 6310125, side channel construction – Two Rivers and Tar Cree, and the repair of unauthorized vehicle damage – Riverside and Two Rivers.

1.5 **Spotted Owls**: No seasonal restrictions are required because all projects are outside the disruption distances specified in the Biological Evaluation.

2. During the culvert replacement projects, stream flow would be guided or diverted away from the reconstruction site. Flow would be restored to the reconstructed stream course once construction is complete. Excavated materials would be removed from the flood plain.

Erosion control devices would be installed to capture and reduce downstream transport of fine sediments.

3. To reduce erosion, bare soils would be revegetated. Grass seed and fertilizer would be evenly distributed at sites of soil disturbance. Steeper slopes that have bare soils would also have mulch applied to ensure successful establishment. Effective ground cover would be installed prior to October 1 of each year.

4. To minimize the spread of noxious weeds the following actions would be taken for all projects where applicable.

   Control weeds as necessary at project sites.

   All off-road equipment is required to be free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds prior to coming onto National Forest lands. Timber sale contracts and service contracts would include provisions to minimize the introduction and spread of invasive plants. These provisions contain specific requirements for the cleaning of off-road equipment.

   Native plant materials are the first choice in revegetation of bare soils. Non-native, non-invasive plant species may be used if native plant materials are not available or as an interim measure designed to aid in the re-establishment of native plants. Non-native invasive plant species would not be used.

   Grass seed would preferably be certified by the states of Oregon or Washington or grown under government-supervised contracts to assure noxious weed free status. In certain cases, non-certified seed may be used if it is deemed to be free of Oregon State Class A & B noxious weeds.

   When straw and mulch are utilized, it would originate from the state of Oregon or Washington fields, which grow state-certified seed, or grown under government-supervised contracts to assure noxious weed free status, or originate in annual ryegrass fields in the Willamette Valley. In certain cases, straw or hay from non-certified grass seed fields may be used if is deemed to be free of Oregon State Class A & B noxious weeds.

5. Avoid fertilizer use in close proximity to live streams and wetlands. According to NOAA Fisheries and U.S. Fish and Wildlife Service standards, chemical fertilizer should not be applied within 50 feet of live water.

6. Culvert replacements, bridges and other stream crossings would be designed to accommodate at least the 100-year flood event, including associated bed load and debris where there is a high risk of debris flows. Culvert replacement in fish-bearing streams would be designed for stream simulation.

7. A site specific Spill Prevention Control and Countermeasure Plan for project sites and staging areas would be developed. If fuels are stored in the project area, the Forest Service

would approve the site in advance. Appropriate measures for containment, such as berms and catch basins with plastic liners would be used.

8. Where project design within Riparian Reserves involves excavation of existing topsoil, special efforts would be taken to restore the site. The topsoil with its accompanying large woody debris would be removed and stored nearby. Prior to completion of project, the topsoil and large woody debris would be placed back onto suitable areas to facilitate revegetation.

9. All known heritage resources would be protected. Should heritage resources be located during project implementation, project activities would be halted until consultation with the Forest Archeologist can determine appropriate site-specific mitigation. Off-Forest projects would have heritage resource surveys completed prior to implementation.

10. To minimize effects to white water river users, logs used for in-stream restoration projects on rivers would be placed so that they do not cross the entire channel.

Alternatives Considered but Not Fully Developed

Consideration was given to a much longer list of projects. The proposed action does not fully restore watersheds: there are known restoration opportunities that are not included and there are conceptual proposals for restoration that are not yet fully developed to the point where analysis can proceed. The logistics involved with project design, field survey work and the available funding also contributed to the shaping of the proposed action.

CHAPTER 3 - ENVIRONMENTAL CONSEQUENCES

Fish and Water Quality Effects of Alternative A (No Action)

Alternative A would not meet any of the goals described in the purpose and need section. The objective of moving toward healthier watersheds would not be met. Declining fish runs would not be assisted in recovery by any habitat improvements. Roads may fail causing landslides and further degradation of watershed conditions. It is recognized that it would take many years of restoration effort to fully meet the goals of watershed recovery. Alternative A does not take any steps in that direction.

Fish Passage Barriers

Under Alternative A no fish passage barriers would be corrected. In streams that currently have partial or full fish passage barriers due to inadequate stream crossings, fish would continue to have problems moving throughout the stream system. These impediments result in under utilization of spawning and rearing habitats and hinder the broad exchange of genetic material throughout the population. When culverts are too small to accommodate a 100-year flood event, there is the potential for culverts to become plugged, possibly resulting in washout and damage to the aquatic environment. Washouts would introduce a pulse of sediment into the stream system and cause degradation of downstream aquatic habitat.

In-stream and Riparian Projects

In-stream conditions would continue to be less than optimal for fish. There would be inadequate pools, large woody debris, and shade. Important off-channel rearing and refugia habitat would not be improved and habitat conditions would continue to be less than optimal for threatened fish species. Side channels would be dewatered or heat up during the dry season killing fish that seek refuge in these areas. Conifers in riparian areas that are being out-competed by other tree species would grow at a slower rate delaying the recruitment of large woody debris to the stream. Also, the amount of shade that these conifers would provide to the stream would be reduced.

Road Decommissioning/Repair/Closure

Roads that have been deteriorating are causing resource damage, and can also be unsafe for vehicular traffic. Resource damage is commonly in the form of increased fine and coarse sediment introduction. Other sections of road have cracked and failing roadfills that have the potential to introduce sediment at some future point by slope failure or surface erosion. This condition would continue. Alternative A would not take any steps to remedy the current road conditions.

Unauthorized Vehicle Damage

Areas impacted by unauthorized off-road vehicle use would continue to deteriorate. The detrimental affects to vegetation would continue. This has the potential to increase fine and coarse sediment input into streams and cause degradation of riparian vegetation.

Effects to Threatened or Proposed Fish and Essential Fish Habitat

Listed fish and essential habitat would continue to be negatively affected by sediment.

Cumulative Effects

Alternative A would not contribute to short-term cumulative effects since no ground disturbance would occur but it would also not contribute to long-term cumulative benefits. Long-term detrimental cumulative effects would occur and would progressively get worse as time goes by if problem areas are not treated.

Fish and Water Quality Effects of Alternative B (Proposed Action)

Effects of Projects on Aquatic Habitats

Fish Passage, In-stream, and Riparian Restoration Projects

Many projects involve work within or adjacent to the active stream channel. They could

deliver sediment, create turbidity, and cause stream bank erosion. The use of heavy mechanized equipment, such as a track hoe or walking excavator, could disturb the stream influence zone, disturb fish, and cause incidental mortality. There is also the potential of an accidental fuel/oil spill.

These projects may cause a short-term degradation of water quality due to sediment input and chemical contamination. Stream bank condition and habitat substrate may also be adversely affected in the short term. However, with careful project design and mitigation, these effects are expected to be of a limited extent and duration.

Direct effects to fish species resulting from these projects include reduced feeding efficiency during times of increased turbidity and the possibility of individual mortality during construction. Fish rely on sight to feed so feeding success could be hampered during those times turbidity is increased. This would be a short-term effect since turbid conditions would dissipate soon after an in-stream work phase was completed, generally within a few hours.

Any time there is digging or equipment used within the live stream channel there is a possibility fish could be killed or seriously injured by being crushed or run over by equipment. Based on previous experience with in-stream restoration projects, most fish vacate the area when equipment disturbs the stream channel.

Indirect effects are possible from increased amounts of fine sediment degrading aquatic habitat after project implementation is completed. Fine sediment sources include material mobilized from the stream channel during construction or erosion of exposed soil during and after project implementation. Potential impacts from increased amounts of fine sediments are degradation of spawning habitat. Wood placed in the stream channel would cause changes in channel hydraulics and may cause bank erosion and/or streambed scour. Although these processes occur naturally, the addition of large wood or changes in channel geometry as a result of restoration activities could cause localized areas of erosion until the channel reaches equilibrium at those sites.

The amount of sediment generated from these projects is expected to be low due to the time of year when the projects are implemented and the use of best management practices. Once exposed soil areas are re-vegetated and stabilized, erosion would be negligible. Affected areas would be localized and probably extend no further than several hundred feet downstream from the project site. The effects would be relatively short-term; as flows in the winter increase, any sediment caused by project activity would be redistributed downstream and in effect diluted as material settles in different areas.

The probability of “take” of threatened or proposed species resulting from the implementation of these types of projects is low, but present regardless. Following in-stream work guidelines, project design criteria, using aggressive erosion control measures, and adherence to applicable Best Management Practices (BMP’s) effects would be negligible at the watershed scale.

These projects are expected to provide long-term ecological benefits, such as restoring habitat connectivity to all life histories of fish and aquatic species, restoring fish passage to historical

habitats, reducing erosion and sedimentation, restoring riparian vegetation and natural processes, improving nutrient levels and improving spawning and rearing habitat for all fish species.

Road Decommissioning/Repair

One of the most important aquatic components of watershed restoration is control and prevention of road-related runoff and sediment production. Road related projects include repair, decommissioning, and storm-proofing. These projects involve work within the existing road prism. Thus, the potential exists to deliver sediment to streams and create turbidity, particularly where roadwork happens close to streams.

These activities may cause a short-term degradation of water quality and aquatic habitat due to sediment inputs. Potential direct effects to fish species resulting from implementing road projects are increased turbidity levels which may reduce feeding efficiency. This is likely to only occur in the vicinity of stream crossings where project work may directly impact stream habitat, as in the case of culvert removal during road decommissioning. In the long-term, these projects would restore aquatic habitat by reducing sediment delivery to streams and improving fish passage by removing culverts where roads are obliterated. Indirect effects are possible from increased delivery of fine sediment from erosion of exposed soil during and after project implementation.

Road decommissioning projects would also tend to restore hydrology by reducing peak flows (reducing the amount of non-permeable surface thus reducing run-off) and reducing drainage network. Watershed conditions would also be improved as road densities are reduced and riparian reserves are restored. These projects may also potentially improve floodplain connectivity where culverts are removed and where roads parallel stream channels along the valley bottom.

The proposed projects would result in improved long-term water quality. Areas of chronic sediment supply would be stabilized and re-vegetated. Road-related watershed restoration treatments proposed in this document would hasten the recovery of watershed health and long-term water quality conditions. Long-term beneficial effects result from restoration of hydrologic functions, reduced risk of washouts and landslides, and reduction of sediment delivery to streams.

Road Closure

Road closure projects involve constructing berms or installing gates. These projects involve work within the existing road prism. There is a very low probability that these projects would have any potential to deliver sediment to streams.

Water Quality

Fish Passage Projects

In general, culvert removal projects would result in short-term input of sediment (immediately and up to 1 to 2 years after project completion) downstream from the project site. Since all of these pipes are on fish-bearing streams, some sediment would be delivered to areas of existing fish habitat. Mitigation measures that are focused on reducing sediment production include operating in the low-water season, isolating the work site from exposure to water, and revegetating disturbed areas after completion of work. These measures would minimize the amount of sediment entering surface water.

These projects would not only benefit fish movement, they would decrease aquatic habitat fragmentation. Larger culverts or bridges would allow wood, water and sediment to move more naturally through these crossing sites.

In-stream Projects

Ground disturbing activities either nearby or within stream channels would likely result in localized short-term increases in turbidity. Most of this sediment is associated with equipment access roads and bank or channel excavation. Increases in turbidity would be of low intensity and short-lived from access roads. Turbidity from channel excavation for wood placement or other aquatic projects can be quite high during equipment operation. Mitigation measures such as timing of operations, use of drainage diversions, sediment filters and timely erosion control applications would reduce the magnitude of short-term water quality effects.

In the long term, these projects would lead to a more natural aquatic environment due to increased channel complexity. This increased channel complexity would restore a more natural flow of wood, water and sediment through these reaches, which would lead to improved aquatic and riparian area function.

Road Decommissioning/Repair

In general, culvert removal during road decommissioning would result in short term input of sediment (immediately and up to 1 to 2 years after project completion) downstream from the project site. Mitigation measures that are focused on reducing sediment production include operating in the low-water window, isolating the work site from exposure to water, and revegetating disturbed areas after completion of work. These measures would minimize the amount of sediment entering surface water.

Ripping of the road surface would help restore infiltration and resulting movement of water vertically through the soil profile. This in turn, should help restore flow quantity and timing and basin hydrology. Erosion and resulting sedimentation originating from these roads would also be reduced significantly due to revegetation and restoration of more natural water flow patterns.

Disturbance within the road prism or ditchline during repair activities has the potential to introduce fine sediment into streams during the first heavy rain events following project implementation. Mitigation measures and adhering to Best Management practices would minimize negative impacts of sedimentation on water quality.

Road Closure

Road closure project would not affect water quality because they are in upland areas and there would be minimal ground disturbance when berms or gates are installed.

Cumulative Impacts

The majority of the restoration projects repair human created features of the landscape. Many restoration projects result in short-term sedimentation until erosion control measures take effect. Other projects that occur in the same watersheds such as timber harvest and road construction have the potential to contribute cumulatively to the sediment load moving down streams and rivers.

Projects on federal lands would be designed to be consistent with the Aquatic Conservation Strategy of the Northwest Forest Plan and Best Management Practices. The short-term sedimentation associated with restoration projects when combined with all other sources would not likely result in harm to fish habitats or water quality for the following reasons:

- Each project would contain mitigations to minimize or eliminate sources of erosion by applying grass seed and/or mulch to areas of bare soil.

- Seasonal restrictions would be observed where appropriate to accomplish work during the dry season.

Restoration projects, timber harvest and road construction on federal land would incorporate these protections where appropriate.
There are many sources of sedimentation in the portions of watersheds that are privately managed. Timber harvest and road building would meet the standards of the Oregon Forest Practices Act that contains many provisions to minimize erosion. Farming, orcharding, grazing, and land development are other potential sources of sedimentation.

All activities that may produce potential sources of sedimentation, whether public or private, would likely occur widely dispersed geographically and chronologically, therefore concentrations of sediment in any given watershed at any given time would be unlikely. The projects would be implemented over multiple years in a number of different watersheds. The recovery from short-term effects from one project may be complete by the time another project in the same watershed is implemented. In addition, some of the projects would result in immediate benefits such as projects repairing riparian areas damaged by vehicles and some road repair projects and these would offset the short-term sediment inputs of other projects.

Generally, any cumulative effect on fishery and aquatic resources resulting from project implementation focus around fine sediment input into streams. This sediment can result from construction activities, or occur at a later date, such as from precipitation on disturbed ground prior to vegetation being re-established. Fine sediment produced as a result of these restoration projects, both directly and indirectly, would contribute to the overall sediment load within the

watersheds where activities would occur. Adherence to Best Management Practices (BMPs), mitigation measures and project design criteria would minimize any long-term adverse effects of project implementation.

Existing Condition

The Clackamas River Basin is located in Clackamas and Marion Counties, Oregon, east and south of the Portland Metropolitan area. The Clackamas River is a major tributary to the Willamette River, entering the Willamette at approximately river mile (RM) 25.

There are approximately 3,100 miles of streams within the Clackamas Basin. The waters of the Clackamas River basin provides important habitat for native populations of fish in over 900 miles of streams. Approximately 310 miles of streams support anadromous fish populations while 620 miles of stream support resident salmonid species only. The watershed is home to one of the last two significant runs of wild late winter coho in the lower Columbia Basin. The watershed also supports one of only two remaining runs of spring chinook in the Willamette Basin. The watershed also supports a significant population of winter steelhead, cutthroat trout and native lamprey. Throughout the year, there is a steady flow of fish moving through the Clackamas River and tributaries.

Past land management activities have had impacts on watersheds throughout the basin, but natural conditions and processes, such as highly erodible soils, also dictate current conditions. Management activities, which have had negative impacts on fish and aquatic resources, include road building, timber harvest, water diversions, hydroelectric development, grazing, and recreation. Today the Clackamas River Basin still supports regionally significant runs, however, fish populations in the basin and the lower Columbia River have declined from historic levels, with some fish runs diminished to the point of being federally listed as threatened species.

The proposed projects have been developed through assessing primary restoration needs, off-Forest opportunities, and recommendations identified in Watershed Analysis. The projects are designed to improve fish passage that has been interrupted by road building activities, reduce sedimentation and erosion, restore riparian areas, enhance aquatic habitat, and improve water quality for fish and other aquatic species.

FISH AND AQUATIC SPECIES THAT OCCUR WITHIN THE CLACKAMAS RIVER

Columbia River Bull Trout *(Salvelinus confluentus)* - (Threatened) Bull trout were once prolific in the Clackamas River system. At present, they are believed to be extinct. Adult bull trout that occurred in the Clackamas River exhibited a fluvial life history character, maintaining residence in the main river and larger tributaries. It is quite likely that adult bull trout in the Clackamas River migrated to the Willamette and Columbia Rivers prior to construction of River Mill Dam. Adult bull trout would reside in the mainstem and larger tributaries until their spawning period during mid-August through September, at which time they would migrate upstream to smaller tributaries to spawn.

U.S. Forest Service fisheries biologists conduct fisheries sampling on an annual basis on many streams throughout the Clackamas River watershed upstream of North Fork Reservoir. To date, these sampling efforts have never yielded capture of bull trout. After several years of intensive sampling, U.S. Forest Service fisheries biologists believe that bull trout in the Clackamas River are considered to be "functionally extinct."

Lower Columbia River Steelhead (*Oncorhynchus mykiss*) - (Threatened) Adult steelhead migrate into the waters of the Clackamas River drainage above North Fork Dam primarily during April through June with peak migration occurring in May. Spawning occurs during the months of April through June in the Upper Clackamas River and during the months of March through June in the Oak Grove Fork. Steelhead use the majority of the mainstem Clackamas and major tributaries such as the South Fork of the Clackamas River, Fish Creek, Roaring River, Oak Grove Fork, Collawash River, and the Hot Springs Fork of the Collawash as spawning and rearing habitat. Winter steelhead fry emerge between late June and late July and rear in freshwater habitat for one to three years. Smolt emigration takes place March through June during spring freshets.

LCR steelhead and their designated critical habitat occur in the mainstem Clackamas River and all of the larger tributaries where project activity would occur such as such as Clear Creek, North Fork Clackamas, Collawash River, and Hot Springs Fork.

Upper Willamette River Spring Chinook (Oncorhynchus tshawytscha) - (Threatened) Upper Willamette River spring chinook salmon occur in the Clackamas River. The ESU consists of both naturally spawning and hatchery produced fish. These spring chinook enter the Clackamas basin from April through August and spawn from September through early October with peak spawning occurring the 3rd week in September. These fish primarily spawn and rear in the mainstem Clackamas River and larger tributaries.

Adults in the lower Clackamas drainage spawn in lower Clear Creek, Deep Creek, and Eagle Creek, below River Mill Dam and between River Mill and Faraday diversion dams. Spawning in the upper Clackamas drainage has been observed in the mainstem Clackamas from the head of North Fork Reservoir upstream to Big Bottom, the Collawash River, Hot Springs Fork of the Collawash River, lower Fish Creek, Roaring River, and the first 0.4-mile of the South Fork Clackamas River.

Upper Willamette River chinook and its critical habitat occur within or downstream of project activity in the mainstem Clackamas River, Clear Creek, North Fork Clackamas, Collawash River, and Hot Springs Fork.

Lower Columbia River Fall Chinook (*Oncorhynchus tshawytscha*) (Threatened) The fall chinook within the Clackamas Subbasin are thought to originate from "tule" stock which was first released into the subbasin in 1952 and continued until 1981. Since 1981 no fall chinook have been released into the Clackamas River. However some adult fall chinook released as juveniles above Willamette Falls may have strayed into the Clackamas River.

Historically fall chinook spawned in the mainstem Clackamas River above the present site of

the North Fork Dam before its construction. Currently the "tule" stock of fall chinook spawn in the mainstem Clackamas River below River Mill Dam and in the lower reaches of Clear Creek. Fall Chinook spawn late August through September. These fish primarily spawn and rear in the mainstem Clackamas River and larger tributaries and are not found above River Mill Dam. LCR chinook and its designated critical habitat occur below River Mill dam. LCR chinook and designated critical habitat occur within the mainstem Clackamas River and Clear Creek downstream of the proposed project sites.

Lower Columbia River Coho Salmon (*Oncorhynchus kisutch*) (Threatened)
The Clackamas River contains the last important run of wild late-run winter coho in the Columbia Basin. Coho salmon occupy the Clackamas River and the lower reaches of streams in the Upper Clackamas watershed including the lower two miles of the Oak Grove Fork. Adult late-run winter coho enter the Clackamas River from November through February. Spawning occurs mid-January to the end of April with the peak in mid-February. Peak smolt migration takes place in April and May.

LCR coho salmon occur within or downstream of proposed projects in the mainstem Clackamas River, Clear Creek, North Fork Clackamas, Collawash River, and Hot Springs Fork.

Southwestern Washington/Columbia River Cutthroat Trout (*Oncorhynchus clarki*)
Sensitive (Forest Service Region 6)

Southwest Washington/Columbia River coastal cutthroat trout occurring in waters of the Mt. Hood National Forest are composed of two native stocks: an anadromous (sea-run) form and resident stock. Resident populations of cutthroat appear healthy in the Clackamas River, Sandy River, Hood River, and Mile Creeks basins. They are also found in the West Columbia Gorge tributaries. High numbers are usually seen by USFS personnel while conducting snorkel or electrofishing surveys.

Historically sea-run cutthroat trout occurred in the Clackamas River, Sandy River, and Hood River basins. More recently, anadromous cutthroat populations appear to have greatly declined throughout these watersheds. We do not have consistent indicators of trends in abundance for most populations of searun cutthroat trout. However, anecdotal information, creel surveys and fish counts at dams have raised concerns that anadromous populations in Oregon may be experiencing a widespread decline. The anadromous cutthroat trout is likely at a very depressed level, possibly near extinction.

Coastal cutthroat trout tend to spawn in very small (first and second order) tributaries. They spawn from December-May; alevins (24 mm) emerge from gravel during June and July. Young fry move into channel margin and backwater habitats during the first several weeks. During the winter, juvenile cutthroat trout use low velocity pools and side channels with complex habitat created by large wood. Coastal searun cutthroat juveniles rear on freshwater for 2-3 years. At 10-25 cm the smolts migrate during April and May to estuaries and marine water; reside close to shore, usually over cobble/sand beaches influenced by freshwater source (e.g. creek or stream). They usually remain close to natal estuary (within 10 km), but may range up to 70 km. Immatures and adults return to over winter in freshwater streams in fall and

return to estuarine areas in spring. Adults hold in tidal pools as early as July in preparation for spawning migration as 4-5 year olds.

Columbia Dusky Snail (*Lyogyrus n. sp. 1*) (Sensitive species, Previously a Survey and Manage species.) Lyogyrus occurs in cold, well oxygenated perennial springs and spring outflows in shallow, slow-flowing areas. Most of the Columbia duskysnails found on the forest have been found in slow, clear, cold (<14 Celsius) water of small systems, such as spring, spring outflow and headwater tributaries. The substrate of site ranges from silt to cobble, and there seems to be a strong association with aquatic moss, especially Fontinalis. Often the snails are on the "fronds" of this moss in the sample area. There doesn't appear to be an association with other aquatic macrophytes.

This species of aquatic mollusk has been found across the Forest during surveys conducted over the past several years (Mt. Hood National Forest, unpublished data). Habitat requirements for this species are fairly specific: cold well oxygenated springs, seeps, and small streams, preferring areas without aquatic macrophytes. Individuals have not been found in larger streams and rivers, or glacial streams.

Surveys for the Columbia duskysnail have been conducted at sites across the Forest for a wide range of projects. This mollusk has been found in many areas across the Forest and is likely to be present in seeps, springs, and smaller streams near and within the proposed project area.

Basalt Juga (*Juga Oreobasis n. sp. 2*) (Sensitive species, Previously a Survey and Manage species.) The basalt Juga occurs sporadically in small, shallow, undisturbed perennial springs and small seeps that flow into the Columbia River. It prefers gravel substrates where *Rorippa* (water cress) is usually present. Occupied springs are often surrounded by basalt talus. The species has been found on sites within the Columbia River Gorge in the Mt. Hood National Forest and Columbia Gorge National Scenic Area.

These small snails have only been found at two location within the Oregon portion of the Scenic Area: in Canyon Creek just west of the town of Hood River and in several small seeps just above (south) Interstate 84 about half-mile east of The Dalles Dam. Individuals have been found at several locations on the Washington side of the Scenic Area and east of the Scenic Area on both sides of the river. They have never been found in any survey conducted on the Forest, and they are not believed to reside in Forest streams. Their habitat requirements are similar to the Columbia Duskysnail: cold well oxygenated springs, seeps, and small streams.

Some of the projects may have short-term impacts to the habitat of these two snails but would have long-term benefits as habitats are restored. The projects may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

EFFECTS DETERMINATION

These projects are expected to provide long-term ecological benefits, such as restoring habitat connectivity to all life histories of fish and aquatic species, restoring fish passage to historical

habitats, and improving spawning and rearing habitat for all fish species.

List of Proposed, Endangered, Threatened, or Sensitive (PETS) Fish and Aquatic Mollusk Species found on the Mt. Hood National Forest and addressed under this Biological Evaluation:

	Date of Listing	Suitable Habitat Present	Species Present	Effects of Actions Alternatives					
Endangered Species Act Listing by ESU *Threatened*				***No Action (A)***	***B***				
					Fish Passage	**Road Decom. & Repair**	**Road closure**	**Instream & Riparian**	**Vehicle Damage**
Lower Columbia River steelhead & CH (*Oncorhynchus mykiss*)	3/98 1/06	Y	Y	NE	LAA	LAA	NE	LAA	NLAA
Lower Columbia River chinook & CH (*Oncorhynchus tshawytscha)*	3/99 1/06	Y	Y	NE	LAA	LAA	NE	LAA	NLAA
Columbia River Bull Trout (*Salvelinus confluentus*)	6/98	Y	N	NE	NE	NE	NE	NE	NE
Middle Columbia River steelhead & CH (*Oncorhynchus mykiss*)	3/99 1/06	N	N	NE	NE	NE	NE	NE	NE
Upper Willamette River chinook & CH (*Oncorhynchus tshawytscha)*	3/99 1/06	Y	Y	NE	LAA	LAA	NE	LAA	NLAA
Lower Columbia River coho *(Oncorhynchus kisutch)*	6/05	Y	Y	NE	LAA	LAA	NE	LAA	NLAA
Regional Forester's Sensitive Species List ***Survey and Manage***									
Interior Redband Trout (*) *(Oncorhynchus mykiss spp.)*	7/04	Y	N	NI	NE	NE	NE	NE	NE
Columbia dusky snail (*,+) *(Lyogyrus n. sp. 1)*	7/04 1/01	Y	Y	NI	MIIH	MIIH	NE	MIIH	NE
Basalt Juga (+) *(Juga oreobasis n. sp .2)*	01/01	Y	N	NI	MIIH	MIIH	NE	MIIH	NE

Abbreviations/ Acronyms:

Endangered Species Act Abbreviations/ Acronyms:		**Essential Fish Habitat Abbreviations/ Acronyms:**	
NE	No Effect	NAA	Not Adversely Affected
NLAA	May Affect, Not Likely to Adversely Affect	AE	Adverse Effects
LAA	May Affect, Likely to Adversely Affect		
Regional Forester's Sensitive Species List* and Survey and Manage + Abbreviations/ Acronyms:			
Unk	Species presence unknown but suspected		
NI	No Impact		
MIIH	May impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or loss of viability to the population or species		

Any adverse effects to fish species or habitat would be short-term, within the first few years. The long-term effects of these projects are beneficial.

DESIGNATED CRITICAL HABITAT

Critical habitat for twelve ESUs of West Coast salmon and steelhead listed under the Endangered Species Act of 1973 was designated on September 2. 2005. Critical habitat includes the stream channels within the designated stream reaches, and includes a lateral extent as defined by the ordinary high-water line or bankfull elevation. Within these areas, the primary constituent elements essential for the conservation of these ESUs are those sites and habitat components that support one or more life stages, including: freshwater spawning sites, freshwater rearing sites, freshwater migration corridors, estuarine areas, near-shore marine areas, and off-shore marine areas that support growth and maturation.

Primary constituent elements listed below, refer to freshwater habitat components. Nothing proposed in any alternative would have any affect on estuarine or marine habitat components, thus they are not discussed.

1. Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development.

2. Freshwater rearing sites with:

    a. Water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility;

    b. Water quality and forage supporting juvenile development; and

    c. Natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.

3. Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions, and natural cover, such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

Designated critical habitat for UWR chinook, and LCR chinook occurs within or downstream of the proposed project areas in the mainstem Clackamas River and Clear Creek. Designated critical habitat for LCR steelhead occurs within or downstream of the proposed project area in the mainstem Clackamas River, Collawash River, Hot Springs Fork, North Fork Clackamas Clear Creek, and Tickle Creek. As of this time, critical habitat for LCR coho has yet to be designated but will likely correspond with the critical habitat designation for LCR steelhead in the mainstem Clackamas and its tributaries.

Project design criteria was developed to minimize or eliminate any potential affect that project elements of the action alternatives might have on have on water quality, fisheries, and aquatic

resources. The analysis of effects has determined that the probability of any potential effect to designated critical habitat would be of a short-term duration. There would be no measurable long-term effect to any habitat or baseline habitat indicators where ESA listed fish species occur. The implementation of this project would not have any long-term adverse effect to designated critical habitat. Therefore, an effects determination of **May Affect, not Likely to Adversely Affect (NLAA)** is warranted for designated critical habitat that occurs within or downstream of the project area.

ESSENTIAL FISH HABITAT

Essential Fish Habitat (EFH) established under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) includes those waters and substrate necessary to ensure the production needed to support a long-term sustainable fishery (i.e., properly functioning habitat conditions necessary for the long-term survival of the species through the full range of environmental variation). EFH includes all streams, lakes, ponds, wetlands, and other water bodies currently, or historically, accessible to salmon in Washington, Oregon, Idaho, and California. Three salmonid species are identified under the MSA, chinook salmon, coho salmon and Puget Sound pink salmon. Chinook and coho salmon occur throughout the Clackamas River watershed in the lower Clackamas River and within waters of Mt. Hood National Forest. Chinook and coho salmon utilize the mainstem Clackamas River and its major tributaries for migration, rearing, and spawning habitat. Coho salmon also utilize some of the smaller tributaries where project activity is proposed for spawning and rearing habitat. The proposed project would not have any long term adverse effect on water or substrate essential to the life history of coho, chinook, or chum salmon that occur within any basin on the Mt. Hood National Forest.

Implementation of the projects proposed would have a short-term impact but would **Not Adversely Affect** essential fish habitat for chinook or coho salmon. This activity would not jeopardize the existence of any of the species of concern or adversely modify critical habitat and would not adversely affect Essential Fish Habitat as designated under the 1996 Amendment to the Magnuson-Stevens Act.

Wildlife

The 2007 Clackamas Restoration Projects Biological Evaluation is located in analysis file and is incorporated by reference and summarized below. A Programmatic Biological Assessment titled “Activities with the Potential to Disturb Northern Spotted Owls, Willamette Planning Process - FY 2008-2009” has been prepared by an interagency team.

Management Indicator Species for this portion of the Mt. Hood National Forest include northern spotted owl, pileated woodpecker, pine marten, deer, elk, salmonid smolts and legal trout (Forest Plan p. four-13).

Northern Spotted Owl (Threatened)

Habitat Characteristics - Old-growth coniferous forest is the preferred habitat of spotted owls in Oregon. Old-growth habitat components that are typical for spotted owls are: multilayered canopies, closed canopies, large diameter trees, abundance of dead or defective standing trees, and abundance of dead and down woody material. The owl's main food items are flying squirrels, red tree voles, western red-backed voles, and dusky-footed woodrats.

Habitat for the owl is further defined as either nesting/roosting/foraging habitat (sometimes referred to as suitable habitat) or dispersal habitat. Nesting/roosting/foraging habitat is generally 80 years of age or older, multi-storied and has sufficient snags and down wood to provide opportunities for nesting, roosting and foraging. Dispersal habitat for the owl generally consists of mid-seral stage stands between 40 and 80 years of age with a canopy closure of 40 percent or greater and an average diameter of 11".

Existing Condition of Project Areas - Many of the project areas occur within spotted owl habitat. Several of the projects occur within Late-Successional Reserves (LSR, Roaring River and Upper Clackamas – RO 207A & B; Bagby - RO 209B; & Collawash – RO 210) and within Spotted Owl Critical Habitat Units (CHU, OR-10, 11, 12, and 13).

Direct and Indirect Effects

Alternative A - No effect to the spotted owl would occur with the no-action alternative.

Alternative B – Effects to Habitat: None of the proposed projects would modify any spotted owl habitat. Ground disturbance and vegetation alterations would be minimal and would not alter any of the habitat components important for spotted owls.

Effects to Spotted Owl from Disturbance: The only impact to spotted owls with some of these projects would be from disturbance due to the noise of equipment. All projects would comply with the standards contained within the Biological Assessment of Activities with the Potential to Disturb Spotted Owls, Willamette Planning Province – FY 2008-2009.

Seasonal restrictions have been adopted for activities that generate noise within certain disruption distances of known owl sites or predicted owl sites during the critical breeding period (March 1st – July 15th).

Chainsaw Use: Restricted if within 65 yards of a known or predicted owl site.
Heavy Equipment: Restricted if within 35 yards of a known or predicted owl site.

Even with this seasonal restriction, most projects would have an effects determination of "may effect, not likely to adversely affect (NLAA). The rationale for the effects determination is because many projects would take place within the disturbance distance (440 yards) of a known or predicted owl site and occur at sometime during the breeding period (March 1st to September 30th). The protection of known and predicted nest patches, and the low density of actively nesting spotted owls is the reason greater effects are not anticipated. Disturbance from the

proposed actions are not likely to adversely affect spotted owls because although adverse effects are possible, they are not reasonably certain to occur.

Some projects may have less effect (no effect determination for the spotted owl) if any of the following conditions are met: 1) Project produces noise, either by sound, human intrusion or mechanical movement, that does not exceed the local ambient noise levels; 2) Project occurs farther than ¼ mile from suitable spotted owl habitat, 3) Area surrounding project is surveyed and found to be greater than ¼ mile from any active spotted owl nest site, 4) Project implementation occurs from October 1st to February 29th (outside of the entire breeding period).

None of the off-forest projects occur within or adjacent to spotted owl habitat. No seasonal restrictions are required for these projects.

No additional restrictions are required in the LSRs or CHUs.

Special Status Species

The following table summarizes effects to Sensitive Species from the Biological Evaluation which is incorporated by reference. The No-action Alternative would have no impact for all species.

Species	Suitable Habitat Presence	Impact of Action Alternative
Bald Eagle	Yes	MII-NLFL**
Oregon Slender Salamander	No	No Impact
Larch Mountain Salamander	No	No Impact
Cope's Giant Salamander	Yes	MII- NLFL**
Cascade Torrent Salamander	Yes	MII- NLFL**
Oregon Spotted Frog	Yes	MII- NLFL**
Painted Turtle	Yes	Beneficial Impact
Northwestern Pond Turtle	Yes	Beneficial Impact
Horned Grebe	No	No Impact
Bufflehead	No	No Impact
Harlequin Duck	Yes	MII-NLFL**
Peregrine Falcon	Yes	MII-NLFL**
Gray Flycatcher	No	No Impact
Baird's Shrew	No	No Impact
Pacific Fringe-tailed Bat	Yes	MII-NLFL**
California Wolverine	Yes	MII-NLFL**
Puget Oregonian	No	No Impact
Columbia Oregonian	No	No Impact
Evening Fieldslug	No	No Impact
Dalles Sideband	No	No Impact
Crater Lake Tightcoil	Yes	MII-NLFL**

** "MII-NLFL" = May Impact Individuals, but not likely to Cause a Trend to Federal Listing or Loss of Viability to the Species

Effects to the species listed above include changes to habitat as well as potential harm to individuals caused by physical impacts of mechanical equipment, falling and dragging trees, and noise.

Wildlife Survey and Manage Species: The Forest Plan was amended by the 2007 Record of Decision to remove Survey and Manage. However the court in *Northwest Ecosystem Alliance et al v. Mark Rey et al, Civ. No. 04-844, Western District of Washington* has not yet granted the government's motion to lift the modified October 11, 2006 injunction. The road related projects in this EA never required surveys under any of the plans because they they are not habitat disturbing activities. The other projects (culvert replacement/removal and riparian and stream improvmenet projects) do not require surveys because they fall within the exceptions listed in the modified October 11, 2006 injunction.

None of the projects would modify red tree vole habitat.

Snags and Terrestrial Down Wood

Direct and Indirect Effects

Alternative A - No effect to the snag and terrestrial down wood habitat components would occur with the no-action alternative.

Alternative B - In some cases down logs may need to be moved for equipment access and a few snags might need to be cut down adjacent to the project site for safety reasons if they present a hazard to the individuals implementing the project. These trees would remain on site and add down wood to the area. The reduction of snags or the movement of existing down logs would be minimal and would have no measurable effect on the species dependent on this habitat substrate.

Deer and Elk Habitat (Management Indicator Species)

Habitat Characteristics within the Clackamas River Ranger District – Roosevelt elk herds in the Clackamas drainage exhibit a close association with riparian habitat in areas of gentle terrain and low road density. Elk tend to frequent often streams or wetlands. Clearcuts in the shrub/seedling stage appear to be an important source of forage for elk. The drainage also contains black-tailed deer. Elk and deer on the District browse on a wide range of native shrubs, trees, forbs and grasses.

High road densities lead to harassment of elk herds. Harassed elk move more often than elk left alone and use of habitat decreases as road density increases. The study mentioned above

also reported that elk within or moving through areas of high open road densities moved longer distances; several miles per day was not uncommon.

Existing Situation – The projects occur within either summer (SR) or winter range (WR) for deer and elk. The projects would have short-term disturbance effects during project implementation but there would be long-term benefits due to road closures.

Direct and Indirect Effects

Alternative A - No benefits to deer and elk would occur with the no-action alternative.

Alternative B – All of the road decommissioning and some of the roads bermed would naturally revegetate and potentially provide additional forage for the deer and elk residing in the area.

There would be a substantial number of road closures occurring that would benefit deer and elk. These road closures occur scattered throughout the Clackamas Watershed and would reduce current open road densities by a total of 108 miles in both summer and winter range.

Implementation of these proposed road closures would reduce harassment to deer and elk and would improve the quality of habitat in the areas that the road closures are occurring within. Because the road closures are substantial, there is the possibility that there could be slight increases in the size of the deer and elk herds in the Clackamas Watershed as a result of these road closures.

The blockage of OHV use and damage may result in a small improvement of forage availability. Blockage of these areas from OHV use could also slightly reduce disturbance and harassment to deer and elk residing in the area.

Pine Marten & Pileated Woodpecker (Management Indicator Species)

The status and condition of management indicator species are presumed to represent the status and condition of many other species. This EA focuses on certain key species and does not specifically address common species such as bear, bobcats or squirrels except to the extent that they are represented by management indicator species.

The pileated woodpecker was chosen as an MIS because of its need for large snags, large amounts of down woody material, and large defective trees for nesting, roosting and foraging. The pine marten is an indicator species to mature or older forests with dead and defective standing and down woody material. It has a feeding area that utilizes several stand conditions that range from poles to old growth.

Existing Situation – The pileated woodpecker is associated with forest habitats that have large trees, especially snags for nesting and foraging. It will use both coniferous and deciduous trees, but tends to be most common in old-growth Douglas-fir forests in western Oregon.

Pine martens are associated with forested habitats at any elevation, but will wander through openings and even up into alpine areas. They prefer mature forests with closed canopies, but sometimes use openings in forests if there are sufficient downed logs to provide cover.

Direct and Indirect Effects

Alternative A - No effect to pine martens and pileated woodpeckers would occur with the no-action alternative.

Alternative B – Most of the proposed project areas do not provide habitat for these species, since they do not contain sufficient numbers of large trees or snags to provide potential habitat for the pileated woodpecker. These project areas also lack the mature forest structure and sufficient downed logs to provide habitat for the pine marten. Most of the projects would not alter these habitats.

The access point to the Tar Creek side channel restoration project would require a spider backhoe to travel through potential pine marten and pileated woodpecker habitat for up to a few 100 feet to access the channel. However, no large trees would be cut-down. Only a few small diameter trees might need to be felled as well as possibly snags if they present a safety hazard. The area affected is so small and the effects to the habitat would be so minor that no measurable changes would occur to the potential pine marten and pileated woodpecker habitat in the area. In addition, the Big Creek Channel Restoration project involves minor impacts to the terrestrial environmental directly adjacent to the project site. However, the Big Creek project has only plantations surrounding the area and is not potential habitat for these species.

Minimal impacts would occur to pine marten and pileated woodpecker habitat.

Migratory Birds

Existing Situation – Close to 30 species of migratory birds occur within the Clackamas River Watershed, some of which are likely present within the proposed project areas during the breeding season. Some species favor habitat with late-seral characteristics while others favor early-successional habitat with large trees.

Several migratory bird species occurring within the watershed have significantly declined over the last two decades, based on Breeding Bird Survey data. Of these species, approximately half are snag dependent and insectivorous or birds of prey feeding on forest birds.

Direct and Indirect Effects

Alternative A - There would be no alteration of habitat for migratory birds.

Alternative B – The creation of side channels could benefit some migratory bird species that are dependent on riparian areas.

There would be minimal impacts to migratory bird species with implementation of these projects. However, in the long-term, road decommissioning and closure may benefit migratory birds.

Botany

No rare botanical species on either the Regional Forester's Sensitive Species list (Region 6, Pacific Northwest) or on the Survey and Manage list for the Northwest Forest Plan were found at the sites visited. Nor were any federally listed or state-listed plant species found. Because all of the proposed project areas are disturbed it is unlikely that any of them contain rare species, but highly likely that they contain invasive alien plant species or non-native plant species.

As part of the restoration work it is recommended that (1) the highly invasive plant species be treated (removed by manual or mechanical methods) and (2) the treated sites be actively restored with the planting of native vegetation in order to occupy the disturbed ground where non-native vegetation is removed and to prevent re-colonization by invasives.

Costs and Benefits

Each project is designed with cost effectiveness as a primary objective so that the limited funding available for restoration can be efficiently used to achieve the greatest benefit. In addition to the resource benefits described elsewhere, there are considerable economic values gained by society when wildlife and fish habitats and water quality are restored.

- Commercial and recreational fishing may be enhanced as fish runs are restored.
- Municipal water providers that filter might see cost savings as water quality improves.
- The Forest would spend less for road maintenance on decommissioned roads.
- The Forest would spend less for flood repairs when culverts are redesigned.

Wild and Scenic Rivers

CHAPTER 4 - CONSULTATION WITH OTHERS

Wild and Scenic Rivers

Some of the proposed projects are located within the Clackamas Wild and Scenic River Corridor. The river is also a State Scenic Waterway. A Wild and Scenic River and State Scenic Waterway Management Plan was developed in 1993. The following is a summary of a Section 7(A) Evaluation that is in the analysis file. This report documents consistency with the

intent of the National Wild and Scenic Rivers Act to keep rivers free flowing and to preserve the Outstandingly Remarkable Values (ORVs) associated with the river.

EFFECTS ON FREE-FLOW

The proposed activities would improve the free flow conditions of the Clackamas Wild and Scenic River by improving channel complexity and by restoring natural river processes, such as the ability of the river to naturally reconnect with its floodplain.

DIRECT EFFECTS ON ORVS AND/OR OTHER SIGNIFICANT VALUES

The projects may have a short-term effect on recreation on and along the river. It would result in a temporary reduction of the recreation quality in the immediate area of the project during the construction period. The projects would have long-term benefits to fish.

DETERMINATION

The proposed project would not unreasonably diminish the free-flowing quality, outstandingly remarkable values, or other natural resource values for which the Clackamas River was designated. The proposed project is consistent with management goals and objectives of the WSRA and the Clackamas National Wild and Scenic River and State Scenic Waterway Environmental Assessment and Management Plan.

Heritage Resources

Previous surveys and a pre-inspection were conducted for this project with no new sites discovered. This project is discussed in heritage resource report numbers 2007-060605-0010 through 0017. There would be no anticipated effects on heritage resources with any of the alternatives. Contracts would contain provisions for the protection of sites found during project activities. Documentation of this information has been forwarded to the State Historic Preservation Office. Off-Forest projects would have surveys completed prior to implementation.

CHAPTER 4 - CONSULTATION WITH OTHERS

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:

FEDERAL, STATE, AND LOCAL AGENCIES

U.S. Fish and Wildlife Service	National Marine Fisheries Service
Oregon Historic Preservation Office	Bonneville Power Administration
Northwest Power Planning Council	Clackamas River Water
South Fork Water Board	Oak Lodge Water Board
Mt. Scott Water District	Bureau of Land Management
Metro	Clackamas River Basin Council
City of Estacada	City of Gresham

City of Lake Oswego	City of Gladstone
City of Oregon City	City of West Linn
Clackamas County	Oregon Department of Transportation
Oregon State Parks	Oregon Department of Forestry
Oregon Department of Fish and Wildlife	Oregon Division of Lands
Oregon Marine Board	Eagle Creek National Fish Hatchery
Environmental Protection Agency	

TRIBES

Confederated Tribes of Warm Springs
Confederated Tribes of Grande Ronde
Yakima Indian Nation Tribal Council

CHAPTER 5 - LIST OF PREPARERS

Robert Bergamini	Fisheries Biologist
Sharon Hernandez	Wildlife Biologist
David Lebo	Botanist
Susie Rudisill	Heritage Resources
James Roden	Writer/Editor

Appendix

Response to Comments

Bark

Road 45

As was pointed out in our preliminary comments, Road 45 is of deep concern to us. We understand that some of the larger, cultural issues of off-highway vehicle use, target practice and other illegal uses of the forest will take time to remedy. The culvert replacements will be a good start to beginning the actual restorative work.

However, it was discouraging to see that none of the spur roads on Road 45 were included for decommissioning. In fact, they have all been prescribed berms which are notoriously ineffective against OHVs. Please include in the final Environmental Assessment a more extensive plan to decommission and remove roads along 45. In particular spur road 340 has multiple sights of poorly constructed culverts and such intensive OHV use it is hard to imagine how a berm will prevent such a popular site from being penetrated. The roads are not proposed for decommissioning at this time because they are needed for future plantation management. These roads are also not listed as high priority for decommissioning in the Forest-wide Roads Analysis. At this time OHV use in this area is legal. With the Forest-wide OHV plan, the Forest is designating areas open to OHV use and will then be able to enforce all other areas as closed. Until that time, OHVs can use all level 1 roads, including roads closed with berms.

4620, Sandstone

We included information about 4620 in our preliminary comments:
"A beaver dam is keeping a pond from draining into the culvert. At the moment, this culvert has a large drop in the outlet and is creating unnecessary erosion. If the beaver dam should break, it will likely overwhelm the culvert and potentially blowout the road with overflow. Because of the steep slope of the creek on the downhill side of the culvert, a blowout could have significant detrimental impacts on Sandstone Creek. This culvert should be replaced, or at the least, reinforcements should be put in place to ensure the road's stability."

In addition, the segment of road just before Sandstone Creek has raised serious safety concerns for those driving on the road and the fish below. We were utterly befuddled that this landslide area was not included in the restoration work. Road 4620 will be used for extensive logging use in the coming year for the 2007 Thin. Bark strongly encourages the Forest Service to analyze revegetation of the unstable slope and culvert replacement on this road. These areas are being considered for restoration. However they require intensive engineering survey and design work before a detailed proposal can be developed. This work can not be completed in time for them to be included with this restoration EA. These projects will be included in a future restoration EA.

Gates & Berms
The road mileage in the proposed action adds up to a hefty 100+ miles of road closure. However, this is potentially deceiving. Based on Bark field surveys, we have seen all types of closures eventually be ineffective. Therefore, these closures are not actually achieving much restoration. With regards to many of these original logging roads, an effective device should be the baseline to ensure effective closures. We understand that the resources for environmental analysis of restoration work are not only limited, but take valuable time.

Consider limiting resources spent assessing the environmental impacts of a gate or berm and actually analyzing effective road removal, revegetation and permanent decommissioning where it is most needed. With another impending storm season around the corner, this time seems better spent ensuring that more productive restoration work is occurring. Gates and berms are used to reduce harassment to wildlife and are not intended to provide the level of restoration of soils or hydrology that decommissioning would.

Culvert Replacement
In the Restoration 2003 Environmental Assessment, one of the mitigation measures proposed was for concern of fine sediment in the streams through culvert replacement. "During the culvert replacement projects, stream flow would be guided or diverted away from the reconstruction site." (Restoration 2003 EA, 12) In the upcoming assessment for roads work in the Clackamas, please elaborate on this process. In particular, if the road is traversing a significant slope or the streambed has steep banks this process would be a complicated measure to take. Although we certainly appreciate mitigation measures taken to avoid an increase in sedimentation, diverted streams in road construction often causes further erosion issues. This mitigation measure is a good example of the shortsightedness in road construction. Road beds do not just traverse well-behaved streams. Road systems traverse entire watersheds and impact drainages before we ever see the results in sedimentation of a stream.

In the environmental assessment for roads work, it seems integral to understand the geologic makeup of the soil for which the road is built on. The relative porosity of a rock type has a direct effect on the earthflow and watershed movement. Recognition of these characteristics will be important for environmental assessment of how restoration work should be implemented.

In Bark's data collection, we have witnessed a repeated issue with road engineering; inadequate ditch relief. Roads intercept the hydrology of a forest in many ways. Rainfall collects on the roads and is channelized. Groundwater is deterred by the compressed soil of fillslope. Waterways become so narrowly channeled that pooling begins to occur. All of these factors can lead to water diverting off a road and into the road ditch. Repeatedly we have seen these ditches leading to culverts that are intended to allow a stream or natural hydrology feature pass beneath the road. ***The use of stream culverts, doubling as a ditch relief culvert is completely unacceptable.*** We urge you in all culvert repair and replacement to ensure that an

additional ditch relief culvert is placed in the road allowing runoff to filtrate through topsoil, at least before entering into the watershed.

The most critical factor in erosion control, particularly around culverts, is vegetation. If there are any signs of discernable erosion or fluvial impact to the road such as plugged culverts, ditches created by a diverted streamflow or gullies on the hillslope and in the road, planting of native grasses and soil mending species such as alder or other appropriate vegetation is absolutely necessary for the recovery of these areas. The proposed action includes almost no mention of revegetation. Please include this road restoration technique as an action in the forthcoming EA. Culvert replacement is guided by standard best management practices that were developed with the assistance of geologists, hydrologists and fisheries biologists. The proposed culvert replacement projects have been examined carefully and will provide substantial benefits to fish.

Closure & Decommissioning
In the scoping notice, there are a number of acknowledged decommissioning and closure project types. As well, it seems there is a range of reasons and determinations for work to take place on chosen roads. The proposed action brushes on these reasons and options, which is helpful to understanding the scope of the proposal. However, as opportunity for restoration work becomes available, in particular with regards to road issues, we ask the Forest Service to present a clear definition of what actions these project types include.

Culled from the proposed action, we understand the following project types to include some of the following actions:
Road Closure – an impediment to unauthorized travel would be placed or replaced at the entrance to a road. This may include a range of removable impediments for future use from a locked gate to berm placement.
Road Decommissioning – removal of gravel surface, culvert removal, scarification of road surface, pulling back unstable fill slopes, berm placement (gates or debris, boulder or root wad piling), planting on disturbed soils and removing the road from the system.

From these definitions we have questions and concerns we hope to see answered in the upcoming EA. With regards to road closure, we have consistently seen berms made with piled soil be a passable point of access for off-highway vehicle (OHV) motorists. Should dirt berms be an option in these projects, how will the Forest Service ensure their success in stopping use of the “closed” road? Though boulders may have an additional upfront cost of hauling material from another place in the forest, they appear to be more effective and require less maintenance in the long run. At this time OHV use in this area is legal. With the Forest-wide OHV plan, the Forest is designating areas open to OHV use and will then be able to enforce all other areas as closed. Until that time, OHVs can use all level 1 roads, including roads closed with berms. Boulders can be effective in some areas but if vehicles can drive around them their effectiveness is reduced.

With regards to road decommissioning, we take this opportunity very seriously. We see the decommissioning and, more specifically, the obliteration of roads from the

national forest as integral to the restoration of Mt. Hood's forests. Many of the roads causing the most egregious threats to watersheds are those originally built for the purpose of logging and were never conditioned for regular citizen use or properly removed from the landscape. Indeed, this past year's storm events revealed weakness in roads throughout the national forest. The Clackamas District bears the burden of not only a legacy of intense road density, but also a prolific hydrological landscape. We do not see signs of progress should the district continue to only reserve restoration work for funding through the commercial timber program. Almost every proposed logging project necessitates new road construction, furthering the very problem we are hoping to remedy. Hundreds of miles or roads have been decommissioned on the Forest, most of which were not funded by the timber sale program. Some current road decommissioning plans are funded through stewardship contracts as requested by the Clackamas Stewardship Partners.

In the list provided in the Proposed Action, there are several points where we wonder if there is simply a lack of data and field data on the part of the Forest Service. For instance, the proposed action for road 6300-170 is to "reinforce a breached berm." In May we sent volunteers out to that road. We sent you a short description of our findings in a preliminary response to this Restoration work:

"Out of the 25 culverts, most are in poor condition, plugged or buried. Vehicles are passing around an earthen berm, taking advantage of the spur road access from the road. The Peat Creek crossing is acting as a ditch relief culvert and now has a 4ft. drop on the outlet. The Paste Creek crossing has a 6ft. drop and pooling on the inlet and outlet. This culvert is either an oval or a crushed circular culvert. Either way, it appears compromised."

To elaborate:

- There are five undocumented roads stemming from this road, added to the two official roads leading from the road.
- Besides the 3 active creek crossings, most of the culverts channeling the water from the ditches are plugged.
- Scotchbroom lines much of the road
- There are unstable slopes in an area that appear to have had repair work done in the past
- Our experienced tracking volunteer identified coyote, deer and bear scat, as well as seeing elk and grouse while on the road.
- This road goes through a meadow and a wetland
- Peat and Paste Creek have 4-6ft. drops on the outflow, causing pooling and the potential for erosion and sedimentation. Both of these creeks are direct tributaries into an anadromous rearing area of the Collowash River.

Based on our findings, we would like clarification of how a road with this many problems could be neglected in restoration work. The notes for this road include "need for thin." The EA should provide justification for continuing to put resources into keeping a road like 6300-170, when deciding against total road and culvert removal. Although Bark has provided cursory data, we are hoping to utilize a database in the future to share our findings which are currently in hard copy and difficult to synthesize in an effective and larger representation. The Forest appreciates the work that Bark has done to identify areas of concern. However, at

this time the Forest feels that it would be premature to decommission this road prior to achieving the needed plantation thinning.

It seems within the scope of this environmental assessment to include any and all known plans for closed and decommissioned roads in the future. Surface erosion from roads, which is one of the greatest risks to water quality, is more tied to the use of the road than even the time elapsed since construction. Therefore if closure plans are to leave this road accessible to future logging, it should be analyzed whether this area will actually be able to handle logging trucks on the road. Years of weathering will leave the original structure of the road much worse off than the current status, but nothing compared to a fully loaded down logging truck pushing the road wider, weighing down the fillslope and creating airborne particles and dust. Of course, not to mention that previous rill erosion in the roadways ideal for the introduction of invasive plants from the wheel treads of a poorly washed truck. These issues were addressed in the Forest-wide Roads Analysis. The affects of potential future thinning, can not be assessed in a meaningful way at this time. The appropriate time to assess the effects of future thinning is at the time a proposed action is developed in a future EA. This EA addresses the effects and benefits of the current proposed action when combined with foreseeable future actions.

Moving forward with road-related restoration work, the public must be clear on the Forest Service definitions of road decommissioning. Total road removal is not included anywhere in this document. But why not? For the scope of this effort it seems entirely appropriate to assess the best restoration action possible. We understand that improper road removal can create short-term detrimental effects that may be more adverse and risky than simply leaving the road to recover. Would decommissioning a road be a commitment from the Forest Service that it would not be used again? Understanding that the work could mean different things site-specifically, the anticipated future needs of these areas is integral to determining the success of their recovery. Decommissioning does not usually include full recontouring of the slope because of the additional soil disturbance that would result from pulling up already vegetated fill slopes. Full recontouring is also very expensive. If all road decommissioning were “total road removal” as you suggest, there would only be enough funding to decommission a very small list of roads. Given that funding for decommissioning is limited, the Forest has opted to examine the site-specific situation and tailor the proposal to achieve hydrologic benefits in a cost effective manner.

The National Forest Management Act, 16 USC 1608(b) and the Forest Service Manual 7703.1 state that the agency is required to “reestablish vegetation cover on any unnecessary roadway or area disturbed by road construction on National Forest System lands within 10 years after termination of the activity that required its use and construction.” We see this restoration work as a good first step in compliance with this mandate. In order to fully comply with this rule, it seems important to:

- be explicit in why a road is necessary to keep past that 10 year age
- include revegetation in all road decommissioning and
- include in the EA the age and usage status of roads

The quote is inaccurate. FSM 7703.1 does not contain this direction. The NFMA contains a similar but different reference to revegetating temporary roads

constructed by timber sale purchasers within 10 years of the close of the timber sale contract. None of this is applicable to the system roads being decommissioned with this EA. The process of decommissioning a road does include the spreading of grass seed where needed to minimize surface erosion.

Data Collection
In Northwest Ecosystems Alliance v. USFS, Case No. C96-0451-R, the decision confirmed that the Forest Service is required to inventory *all* roads within a forest, even non-system roads with are no longer used. In response to page 6, "decommissioning would be a data-keeping exercise to remove the road from the Forest's road system data base," Bark could not disagree more. It is a reasonable expectation that the Forest Service keep record of road building, maintenance and removal of past, present and future roads. With the GIS resources available to the Forest Service, this should, in no way be a hindrance to the process.

In fact, Bark feels strongly that poor record-keeping has been an impetus to the problem. There is little doubt or disagreement that road density is a threat to our forests and watersheds. And yet there appears to be absolutely no efforts being made to make longterm plans to ensure the recovery of these forests. With the list provided in the Proposed Action we see virtually no addressing of the site-specific needs beyond a generic proposed action. The Notes section gives a grim insight into the actual data that exists about these roads. Data for decommissioned roads are maintained in a different area but would no longer be considered system roads.

Looking Forestwide
Bark has been spending much of our summer working to inventory the roads in Mt. Hood National Forest. This data-collection effort has been an amazing opportunity to get citizens out onto the roads and begin to understand the issues firsthand. We feel confident that our education efforts will result in support for congressional representatives to begin to take action in allocating restoration and road removal funding. We continue to confirm that the problem of roads in Mt. Hood National Forest is a forestwide issue, and true restoration will only be successful with a broader commitment by the forest to stop building new roads, implement more stringent expectations for road repair and begin to prioritize the roads the roads that provide safe access to world-class recreation and those roads that should be permanently removed.

Jonathan Carlson

I am strongly opposed to the Road Closures and Decommissioning projects contained in the proposed 2007 Clackamas Restoration Project. I have no opposition to the plans to perform fish passage/culvert repair, in-stream repair, and road repair as needed, however the closure or decommissioning of over 100 road segments is unwarranted, unnecessary, and unwelcome. Although relatively short in distance, these roads are useful and needed for dispersed camping, hunting/fishing access, and exploring our public lands. Evidence of this is shown in the statement that many of the roads listed currently have deterrents that have been removed,

destroyed, or circumvented. Roads that are truly unused will naturally be decommissioned without the construction of gates, berms, and demolition.

The true intent of this "Restoration Project" can easily be seen in the fact that the proposal contains only 31 actual restoration projects and over 100 road closures/decommissions. Specifically, roads slated for decommission due to proximity to "proposed wilderness" is preemptive and ludicrous. A more appropriate title for the proposal is "2007 Clackamas Vehicle Access Denial Project".
Finally, the money and resources that would be wasted on road closures could be used for true improvements to our forests. Continuous attacks on vehicular access does not increase environmental protection or forest health. The pubic forest should be kept open for public enjoyment and not "decommissioned" little by little under the mask of restoration.
Road closures are proposed to reduce harassment of wildlife.

Charlie Ferranti

I will begin and end my comments by congratulating the Clackamas River Ranger District for taking the steps outlined in the request for comments.
I am writing to encourage the Clackamas River Ranger District to include a form of "decadence management," specifically fungal inoculation, as part of the 2007 Clackamas Restoration Projects.
As noted in the Introduction "restoration of the condition of riparian vegetation" is one of the most important components of watershed restoration.
The Desired Future Condition also lists the following elements:

- **Streams** provide a diversity of aquatic habitat for fish and other stream-dwelling organisms. They offer *sufficient quantities of large woody debris*; they have clean and abundant spawning gravel; and they have stable banks that are well vegetated and have cool water. [italics added]
- **Riparian areas** contain plant communities that are diverse in species composition and *structure*. They provide summer and winter thermal regulation; nutrient filtering; and have appropriate rates of surface erosion, bank erosion, and channel migration. They also *supply coarse woody debris* sufficient to sustain physical complexity and stability. Riparian reserves provide mature forest connectivity. [italics added]
- Landscapes contain a diversity of **habitats**.

Purpose and Need:

- Hydrologic regimes, riparian vegetation, aquatic habitats, and wildlife habitats have been *altered by* roads, *timber harvest* and off-highway vehicles. [italics added]
- Some streams have low levels of in-stream large woody debris, *inadequate recruitment of **future** woody debris*, and poor aquatic habitat conditions. [italics and bold added]

As noted in the EAs for Cloak, South Fork, No Whisky, and 2007 Thin, the plantations which already had low levels of disease will be stronger and healthier due to increase access to sunlight, water, and nutrients. These plantations will have the natural level of disease delayed even longer due to the stronger and healthier trees. These plantations, those in the Matrix, Riparian Reserves (RR), and Late Successional Reserves (LSR) will all have abnormally

healthy trees. This may not be a concern in the Matrix, but the forest will have unhealthy amounts of vigor in the RR and LSR. Without disease and decay there won't be recruitment of future large woody debris and large snags, or that recruitment will be significantly delayed. This will have direct and long lasting impacts that will specifically impede the attainment of Aquatic Conservation Strategy objectives.
A ten page summary of the value of decay in not reproduced here but can be found in the analysis file.
This restoration EA is focused on stream and road restoration issues. Decadence management is outside the scope of this EA. Your concerns about mitigating the effects of thinning would be better addressed in a thinning EA.

Road Removal (decommissioning/obliteration)

- Removing roads from recently managed RR and LSR, especially where there is the opportunity to reduce stream crossings and remove culverts that feed streams directly.
- Remove roads that will act to defragment LSR
- Remove roads that act to separate LSR, administratively withdrawn areas, Congressionally withdrawn areas, roadless areas, road removed areas (like Fish Creek) so as to actively reduce forest fragmentation.

Roads with Low Access Needs and High Environmental Risk

Road #	Begin and End Mile Post	Environmental Risk Factor	Length	Done	Planned	Defer	Delete	Plantation Ac.	
4600019	0.00 - 0.10	8	0.076				x		Already closed to vehicles, used for recreation river access
4600028	0.00 - 0.20	10	0.085			x		10	
4600030	0.00 - 0.66	9.33	0.83			x		15	Job Corp Site
4600031	0.00 - 0.25	10	0.14	x					Over Grown with berm
4600032	0.00 - 0.20	10	0.197						Job Corp Site
4600037	0.00 - 0.16	8.47	0.339	x					Listed as decommission completed.
4600038	0.00 - 0.30	9.44	0.174				x		Heritage site in road, don't decommission, road bermed
4600203	0.00 - 0.66	8	0.515						No PLT, no erosion, no culverts, could decommission
4600242	0.00 - 0.32	8.53	0.179						Over Grown with guard rail, no erosion, no culverts
4600265	0.00 - 0.05	10	0.073		x				Decommission with 2007 Restoration EA
4600267	0.00 - 0.14	9.53	0.136		x				Decommission with 2007 Restoration EA
4600324	0.00 - 0.26	8	0.214				x		Access to quarry/stockpile site
4620011	0.00 - 0.14	8	0.131		x			64	Decommission with 2007 Thinning EA
4620012	0.00 - 0.14	8	0.086					30	
4620013	0.00 - 0.23	9.92	0.282		x				Decommission with 2007 Thinning EA
4620014	0.00 - 0.20	9.18	0.213					11	
4620017	0.00 - 0.05	8	0.161				x		Access to quarry/stockpile site
4620018	0.00 - 0.11	8	0.121		x				Decommission with 2007 Thinning EA
4620019	0.00 - 0.15	8	0.157					20	steep through-cut, spring in road, could decommission
4620130	0.0 - 1.20	8	1.179			x		283	first part paved
4620140	0.00 - 0.43	8	0.416			x		25	
4620150	0.00 - 0.88	10	0.812			x		76	
4620160	0.00 - 0.16	10	0.154		x				Decommission with 2007 Thinning EA
4620170	0.00 - 0.35	8	0.347	x				50	Listed as decommission completed.
4620174	0.00 - 0.37	8	0.368			x		15	no erosion, no culverts
4620175	0.00 - 0.10	8	0.133			x		15	
4620180	0.50 - 0.64	8	0.153			x		20	
4620187	0.00 - 0.33	8	0.367			x		21	near pond, no erosion, culverts
4621000	0.45 - 2.46	8	1.857		x	x		240	Part Decommissioned with 2001 Restoration EA
4621000	0.00 - 0.35	8	0.331		x	x		30	Part Decommissioned with 2007 Restoration EA
4621011	0.00 - 0.20	8	0.213		x			26	Decommission with 2007 Restoration EA
4621013	0.00 - 0.12	8	0.097		x			26	Decommission with 2007 Restoration EA

4621014	0.00 - 0.22	8.56	0.207			x		33	
4621015	0.00 - 0.20	8.99	0.18		x			21	Decommission with 2007 Thinning EA
4621017	0.00 - 0.13	9.37	0.423			x		40	
4621022	0.00 - 0.54	8	0.664		x			119	Part Decommission with 2007 Thinning EA
4621023	0.00 - 0.21	8	0.135			x		30	
4621028	0.00 - 0.18	8	0.176		x			32	Decommission with 2007 Thinning EA
4621030	0.00 - 0.15	8	0.039		x				Decommission with 2007 Restoration EA
4621120	0.00 - 0.16	8	0.203			x		18	
4621125	0.00 - 0.27	8	0.266		x			35	Decommission with 2007 Restoration EA
4621130	0.00 - 0.62	8	0.571			x		45	
4621140	0.00 - 0.56	8.14	0.558			x		73	
4621150	0.00 - 1.49	9.46	1.397			x		223	
4621160	0.00 - 0.47	10	0.433			x		40	
4621162	0.00 - 0.40	10	0.334			x		28	
4621170	0.00 - 0.13	8	0.122		x			21	Decommission with 2007 Restoration EA
4621190	0.00 - 0.46	8	0.212			x		66	
4621200	0.00 - 0.80	8	0.79			x		153	
4621210	0.00 - 0.17	8	0.174			x		30	
4621220	0.00 - 0.57	8	0.375		x			30	Decommission with 2007 Restoration EA
4630011	0.00 - 0.16	8	0.086		x				Decommission with 2007 Restoration EA
4630012	0.00 - 0.82	8	0.606				x		Access to Frog Reservoir - PGE
4630015	0.00 - 0.18	8	0.314			x		72	
4630031	0.00 - 0.50	8.39	0.438			x		30	effective berm, overgrown, no erosion, thin soon
4630120	0.00 - 0.55	10	0.518			x		66	no erosion, no culverts, thin soon
4630140	0.00 - 0.15	8.94	0.432			x		30	effective gurard rail, vegetation on road, no erosion, no culverts
4630150	0.00 - 0.46	8	0.755					38	part already decommissioned, could pull live culvert, no erosion
4631017	0.00 - 0.32	8	0.098	x				10	very overgrown
4631120	0.00 -0.26	10	0.188				x		Access to Ripplebrook Heliport
4640011	0.00 - 0.68	9.24	0.623					73	
4640012	0.00 - 0.45	8	0.585		x				Decommission with 2003 Restoration EA
4640013	0.00 - 0.13	8	0.116			x		15	
4640014	0.00 - 0.22	8	0.216			x		43	Overgrowing, no erosion, no culverts, could install berm
4640015	0.00 - 0.13	8	0.106			x		26	vegetated, effective guard rail,
4640016	0.00 - 0.35	8	0.556			x		54	vegetated, effective guard rail,
4640017	0.00 - 0.12	8	0.136			x		51	overgrown, no erosion
4640027	0.00 - 0.22	8	0.219					35	
4640120	0.00 - 1.02	8.94	1.104			x		49	5 culverts, 1live stream, no erosion, fully vegetated, effective guard rail
4640130	0.00 - 0.49	8	0.453			x		97	live culvert at junction near guard rail, 1 cross drain, no erosion, vegetated
4640140	0.00 - 0.565	8	0.53			x		80	3 cross drains, vegetated
4640150	0.00 - 1.85	8	1.455			x		99	several culverts, vegetated, effective guard rail
4645000	0.00 - 1.13	8.02	1.109			x		505	paved, some cracks, no erosion, several culverts

4645000	1.13 - 1.23	8	0.099			x		349	
4645012	0.00 - 0.21	8	0.148			x		23	could install berm
4645120	0.00 - 0.86	8	0.856			x		68	
4645130	0.00 - 1.10	8	1.167			x		97	guard rail down, no erosion, grass
4645135	0.00 - 0.57	8	0.356			x		56	could berm,
6300015	0.00 - 0.28	8	0.162		x			27	Decommission with 2007 Restoration EA
6300016	0.00 - 0.18	8	0.193			x		15	
6300170	0.00 - 2.75	8	2.642			x		258	
6300173	0.00 - 0.07	8	0.084			x		16	
6300175	0.00 - 0.17	8	0.12			x		13	
6300176	0.00 - 0.25	8	0.319			x		24	
6300180	0.00 - 0.31	8	0.291			x		53	overgrown
6300183	0.00 - 0.20	8	0.8	x				34	already decommissioned
6300185	0.00 - 0.96	8	0.896		x			94	Part Decommission with 2007 Restoration EA
6310115	0.00 - 0.27	8	0.245						could decommission
6310162	0.00 - 0.20	8	0.195			x		65	
6311011	0.00 - 0.15	8	0.063	x					Listed as decommission completed.
6311012	0.00 - 0.20	8	0.199						could decommission
6311140	0.00 - 1.12	8.15	1.053					40	could decommission
6311150	0.00 - 0.83	8	0.809			x		113	
6311160	0.00 - 0.96	8	0.938		x			51	Decommission with 2007 Restoration EA
6320014	0.00 - 0.04	8	0.094	x				10	already decommissioned
6321014	0.00 - 0.16	8	0.123				x		Access to BPA Powerline towers
6321015	0.00 - 0.26	8	0.246	x					Listed as decommission completed.
6321016	0.00 - 0.40	8	0.354			x		30	
6321017	0.00 - 0.17	8	0.149		x				Decommission with Fan Thin EA, delayed by litigation
6321130	0.00 - 0.20	8	0.116			x		42	
6321150	0.00 - 0.66	8	0.646			x		90	
6322011	0.00 - 0.13	8	0.065				x		Access to BPA Powerline towers
6322012	0.00 - 0.20	8	0.184				x		Access to BPA Powerline towers
6322122	0.00 - 0.17	8	0.162	x				11	already decommissioned
6322140	0.00 - 0.33	8	0.482			x		22	
6330011	0.00 - 0.10	8	0.15						overgrown
6340120	0.00 - 0.36	8.49	0.329					70	could decommission
6350200	0.00 - 0.37	8	0.221	x					Listed as decommission completed.
7000111	0.00 - 0.07	8	0.07				x		Access to quarry/stockpile site
7010016	0.00 - 0.60	8	0.077			x		46	
7010025	0.00 - 0.13	10	0.097				x		Access to BPA Powerline towers
7010114	0.00 - 0.20	8	0.155				x		Access to BPA Powerline towers
7010134	0.00 - 0.08	8	0.115			x		12	overgrown, could berm