Chapter 4. Consultation and Coordination

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

Interdisciplinary Team Members:

<table>
<thead>
<tr>
<th>IDT Role</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT Leader, Silviculturist</td>
<td>Eric Ornberg</td>
</tr>
<tr>
<td>Botanist</td>
<td>Molly Juillerat</td>
</tr>
<tr>
<td>Soil Scientist</td>
<td>John Dixon</td>
</tr>
<tr>
<td>Hydrologist</td>
<td>Lisa Kurian</td>
</tr>
<tr>
<td>Fisheries</td>
<td>Brandy Langum</td>
</tr>
<tr>
<td>Wildlife Biologist</td>
<td>Cheron Ferland</td>
</tr>
<tr>
<td>Fire/Fuels</td>
<td>Jose Mercado</td>
</tr>
<tr>
<td>Engineering</td>
<td>Zeke Langum</td>
</tr>
<tr>
<td>Recreation</td>
<td>Karl Dietzler</td>
</tr>
<tr>
<td>Heritage Resources</td>
<td>Terry Godin and Steve Hamilton</td>
</tr>
<tr>
<td>Logging Systems Specialist</td>
<td>Bill Menke</td>
</tr>
<tr>
<td>Presale Technician</td>
<td>Jerry English</td>
</tr>
</tbody>
</table>

Federal, State, and Local Agencies:

The following Federal and State government agencies were contacting at various points during project development. This contact consisted primarily of report submissions, but some attended field trips or meetings.

- U.S. Fish and Wildlife Service (USFWS)
- National Oceanic and Atmospheric Administration (NOAA)
- National Marine Fisheries Service (NMFS)
- Oregon Department of Fish and Wildlife
- Oregon State Historic Preservation Office.

Formal consultation with the U.S. Fish and Wildlife Service (USFWS) was required based on analysis of impacts from initial proposed actions for the northern spotted owl (spotted owl). Consultation for effects from proposed Pioneer Gulch project activities was incorporated into the Willamette Province FY 2011-2012 Batched Biological Assessment (BA) for Habitat Modification Projects (dated July 2010). In February 2011, the USFWS issued their Biological Opinion (BO) for fiscal years 2011-2012 habitat modification activities within the Willamette Province (February 2011: FWS Reference Number 13420-2010-F-0157). The Pioneer Gulch project is listed in the BO and will comply with all standards pertaining to project activities described therein.

Based on the initial Pioneer Gulch Project proposed action alternatives, the determination for affects to spotted owls was Likely to Adversely Affect (LAA). However, due to project modifications that occurred after the consultation, the final determination of affects is May Affect,
Not Likely to Adversely Affect (NLAA) spotted owls. Formal consultation will remain in place, and the change in determination will be addressed in the annual monitoring reports.

National Oceanic and Atmospheric Administration (NOAA) Fisheries has worked with the U.S. Fish and Wildlife Service (USFWS), Bureau of Land Management (BLM), and the Forest Service (FS) to revise the methods for making determinations of effect for land management activities impacting ESA-listed salmonid species in the Northwest Forest Plan geographical area. This new approach was used to assess the effects of the proposed action. In this regard, the elements of the proposed action were analyzed for potential effects on the Upper Willamette spring Chinook salmon and bull trout due to changes in the habitat pathways of water quality, habitat access, habitat elements, channel conditions and dynamics, flow/hydrology, and watershed conditions. In applying the revised analysis approach, the agencies consider eight factors, derived largely from the joint NOAA Fisheries and Fish and Wildlife Service ESA Section 7 Consultation Handbook, when evaluating the effects of an action on habitat indicators and subsequently the effects on ESA-listed fish. These factors are proximity, probability, magnitude (severity and intensity), nature, distribution, frequency, duration, and timing, where applicable. The effect determinations for listed fish in this project are Likely to Adversely Affect (LAA) for spring Chinook salmon, Not Likely to Adversely Affect (NLAA) bull trout, Likely to Adversely Affect spring Chinook salmon Critical Habitat and bull trout Critical Habitat, and No Effect (NE) for Essential Fish Habitat (spring Chinook salmon).

State Historic Preservation Office consultation is underway under the terms of the 2004 Programmatic Agreement. When complete, a signed Project Review form, indicating compliance with the federal laws and regulations will be provided for the project file.

Tribes:
A letter with the description of the proposed action and project area information was sent out on August 21, 2008 to representatives of the following tribes: Confederated Tribes of Warm Springs Reservation of Oregon, Confederated Tribes of Siletz Indians of Oregon, Confederated Tribes of Grand Ronde Community of Oregon, and the Klamath Tribe. The letter explained the purpose and need for the project, provided a map of the project area, and solicited comments on the proposed action.

A project update letter was mailed out to the four tribes on October 18, 2011. This letter described several changes to the proposed action that were incorporated since the first letter.

The Pioneer Gulch Project has been included in the Annual Program of Work Review with the Confederated Tribes of the Grand Ronde, Siletz, and Warm Springs since 2008. No comments from any tribes have been received specific to the Pioneer Gulch Project.
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Pioneer Gulch Project


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**Fire and Fuels**


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**Other Disclosures**


Appendices


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## Appendix A – Sale Area Improvements

### Project Funding Priority List

<table>
<thead>
<tr>
<th>Priority Grouping</th>
<th>Activity</th>
<th>NEPA Coverage</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inventory, treatment, and monitoring of invasive weeds in harvest, fuel break, and forage treatment units, haul roads, and quarries (post-operations).</td>
<td>Pioneer Gulch EA</td>
<td>$50,000</td>
</tr>
<tr>
<td>1</td>
<td>Roadside seeding/mulching with native species in various places within sale area boundaries to maintain conditions after operations are completed.</td>
<td>Pioneer Gulch EA</td>
<td>$7,000</td>
</tr>
<tr>
<td>1</td>
<td>Subsoiling enhancement and seeding with native seed to treat additional non-primary skid trails and existing non-system roads not used for this harvest ($1350/acreX25.2 ac).</td>
<td>Pioneer Gulch EA</td>
<td>$34,020</td>
</tr>
<tr>
<td>2</td>
<td>Treatments in forage enhancement units 3570 (hand-cutting of conifers, hand pile and burn). 45 acres of treatment X $400/ac.</td>
<td>Pioneer Gulch EA</td>
<td>$18,000</td>
</tr>
<tr>
<td>2</td>
<td>Closure and hydrological storage of system roads listed in the Proposed Action. Highest priority roads are 2100390 and 2100392. Priority for other roads will follow the Aquatic Risk Rating with top priority being High, followed by Moderate, then Low.</td>
<td>Pioneer Gulch EA</td>
<td>$55,174</td>
</tr>
<tr>
<td>2</td>
<td>Hazardous fuel reduction (precommercial thinning, whip-felling, pruning, piling and burning) in fuelbreak treatment units (133 acres).</td>
<td>Pioneer Gulch EA</td>
<td>$123,300</td>
</tr>
<tr>
<td>3</td>
<td>Stream restoration – in stream placement of large wood and root wads, including pulling over trees to enhance bull trout and salmon habitat in the Middle Fork Willamette River.</td>
<td>A separate Decision Memo would be needed.</td>
<td>$55,000</td>
</tr>
<tr>
<td>4</td>
<td>Restoration of Quail Meadow, located north of and adjacent to Units 2923a and 2952a.</td>
<td>Calapooya II Meadow Restoration project Decision Memo (in progress)</td>
<td>$50,000</td>
</tr>
<tr>
<td>4</td>
<td>Planting of 3-acre gaps in commercial thinning units with rust-resistant western white pine, western redcedar, and native shrubs such as elderberry, cascara, hawthorn, and serviceberry (47 ac x $525/ac).</td>
<td>Pioneer Gulch EA</td>
<td>$24,675</td>
</tr>
<tr>
<td>4</td>
<td>Precommercial thinning and pruning in plantations other than the Alternative 2 Proposed Action treatments – to increase health and vigor.</td>
<td>2012-2016 Young Stand Density Management and Conifer Pruning Decision Memo (in progress).</td>
<td>$34,200</td>
</tr>
<tr>
<td>5</td>
<td>Effectiveness monitoring of forage units and gaps for wildlife use.</td>
<td>Pioneer Gulch EA</td>
<td>$1,500</td>
</tr>
<tr>
<td>5</td>
<td>Effectiveness monitoring of underburning related mortality in Units 2923a, 2923b, 2952a, and 2952b.</td>
<td>Pioneer Gulch EA</td>
<td>$4,240</td>
</tr>
</tbody>
</table>
Appendix B – Past, Present, and Reasonably Foreseeable Future Actions

The Forest Service Handbook (FSH 1909.15 Chapter 10 15.1) addressing NEPA procedures requires consideration of cumulative impacts in an environmental analysis. Cumulative effects are defined as the impacts on the environment resulting from incremental effects of the action when added to other past, present, or reasonably foreseeable future actions. Reasonably foreseeable future actions are those for which effects can be accurately estimated, typically actions that have been formally proposed, and have a specific locations and acreage associated with them. These actions may take place after the effects considered in this analysis occur. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

In some cases there are no accumulating effects on a particular resource from past or future actions because the effect on a given resource are so ephemeral (for example smoke produced by prescribed burning) that it is gone before the next action produces a similar effect. In other cases there have not been any past nor reasonably foreseeable future actions that had or may have a similar effect to the actions under consideration. Council of Environmental Quality guidelines for cumulative effects analyses (Cannaughton, 2005) do not require a cataloging or exhaustive listing of individual past actions. Past actions occurring within this planning area that contribute to cumulative effects consist primarily of timber harvest, particularly the regeneration harvest that generated the second-growth stands that are common in this area.

Table B-1: Past and Present Actions in the Project Area

<table>
<thead>
<tr>
<th>Past and present actions in the project area include:</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regeneration harvest - from the 1950's to 1990's</td>
<td>8,347 ac.</td>
</tr>
<tr>
<td>System Road construction – 1940 to 1980</td>
<td>147 miles</td>
</tr>
<tr>
<td>Trail construction</td>
<td>44 miles</td>
</tr>
<tr>
<td>Pre-commercial thinning – 1960 to present</td>
<td>Several hundred acres</td>
</tr>
<tr>
<td>Road maintenance</td>
<td>Ongoing for system roads</td>
</tr>
<tr>
<td>Road Closure</td>
<td>131 miles</td>
</tr>
<tr>
<td>Tumblebug Fire BAER</td>
<td>See Below</td>
</tr>
</tbody>
</table>

While the effects of the 14,560 acre Tumblebug Fire of 2009 are not, strictly speaking, an “action” in that they resulted from a wildfire, there were considerable environmental effects from soil, vegetation, wildlife populations and habitat, and social perspectives. As such, the fire has created a certain background condition which has been taken into account for the preceding effects analysis just as they would be if such results were from past human actions.

Another past action within the Upper Middle Fork Willamette watershed was implementation of the Tumblebug Fire Burned Area Emergency Response (BAER) Plan, which began as the fire was suppressed in 2009 and was finalized in 2010. Activities associated with this plan included (1) applying wood mulch by helicopter on approximately 110 acres to protect soil productivity by replacing ground cover burned in the fire, (2) applying mulch by truck-mounted applicator along 4.5 miles of road to speed vegetative recovery on cut and fill slopes, (3) maintaining road drainage features to protect the road infrastructure and provide for safe public access,
(4) stabilizing the road fill for a segment of Road 2144, (5) replacing the Mac Creek culvert on Road 2143-320, (6) repairing drainage on approximately 1.5 miles of trail, and (7) implementing a variety of patrols, public contacts, area closures, area signing, and monitoring to assess inform the public and assess post-fire conditions.

1) Past Actions
-Past timber harvest by decade within the project area:

Table B-2: Past harvest

| Decade | Commercial Thinning | | | Regeneration Harvest | | |
|--------|---------------------|--------|---|----------------------|--------|
|        | Acres | % of Project Area | Acres | % of Project Area |
| 1950's | 0     |                    | 569   | 2%                   |
| 1960's | 0     |                    | 1,983 | 5%                   |
| 1970's | 0     |                    | 2,034 | 5%                   |
| 1980's | 269   | <1%                | 3,004*| 8%                   |
| 1990's | 408   | 1%                 | 757   | 2%                   |
| 2000's | 0     |                    | 0     | 0%                   |
| Totals | 677   | 2%                 | 8,347 | 22%                  |

-Past road construction in the project area.

Total road miles – 147.06
Paved road miles – 10.75
Aggregate surface road miles – 111.38
Native surface road miles – 24.93

- Road maintenance work (blading, ditch cleaning, brushing, hazard tree removal).

-Past road closures:

-Upper Middle Fork Watershed Road Stormproofing and Restoration Project closed and stored 18.4 miles and stored without closing about 4.8 miles of road in the Upper Middle Fork Willamette River fifth-field watershed.

-Echo Staley Road Storage and Illegal Household Trash Site Management Project closed and stored about 23.3 miles of road in the Echo Creek and Staley Creek portions of the Upper Middle Fork Willamette River fifth-field watershed.

-Numerous aquatic restoration projects have been completed in the Upper Middle Fork Willamette 5th Field during the last ten years. These include; remediation of fish passage problems in Swift and Echo, (2003-2008); in-stream large wood placement in Swift, Bear, Echo, Staley, and Upper Middle Fork Willamette River (starting in 2001); and the Indigo Springs Passage and Spawning Channel Project (2009).
- Respect the River Project (phase 1) minimized resource impacts at 17 dispersed campsites along the Middle Fork Willamette River in the fall of 2011 and improved riparian health. This was accomplished by reducing the number of user created trails, limiting site size, limiting motor vehicle access to the riparian zone, scarifying or subsoiling compacted soils, planting native vegetation, and displaying educational Respect the River signage.

- In 2009, the Tumblebug Fire burned 14,560 acres of the Upper Middle Fork Willamette Watershed, including a portion of the project area. While the impacts of Tumblebug, strictly speaking, are not “actions” since they resulted from a wildfire, there were considerable environmental effects to soil, vegetation, wildlife populations and habitat, and social perspectives. As such, the fire has created a certain background condition which has been taken into account for the effects analysis just as it would be if such results were from past human actions.

- Implementation of the Tumblebug Fire Burned Area Emergency Response (BAER) Plan began as the fire was suppressed in 2009 and was finalized in 2010. Activities associated with this plan included (1) applying wood mulch by helicopter on approximately 110 acres to protect soil productivity by replacing ground cover burned in the fire. (2) applying mulch by truck-mounted applicator along 4.5 miles of road to speed vegetative recovery on cut and fill slopes, (3) maintaining road drainage features to protect the road infrastructure and provide for safe public access, (4) stabilizing the road fill for a segment of Road 2144, (5) replacing the Mac Creek culvert on Road 2143-320, (6) repairing drainage on approximately 1.5 miles of trail, and (7) implementing a variety of patrols, public contacts, area closures, area signing, and monitoring to inform the public and assess post-fire conditions.

- Past invasive weed treatments

- Recreation activities including dispersed camping, hunting, hiking, mountain biking, ATV use, snowmobiling, general motorized use.

- Fire suppression and emergency rehabilitation activities on the Tumblebug Fire.

2) Present Actions

Road Storage and Decommissioning -

- Upper Middle Fork Watershed Restoration and Road Closure Project: Closure and storage or decommissioning treatments on approximately 89.6 miles of road within the Upper Middle Fork Willamette 5th field watershed. Implementation began in the summer of 2011.

- Middle Fork Closed Road Stabilization project: Road storage treatments on already closed roads beginning in 2011. Approximately 25 miles of Maintenance Level 1 roads in the Upper Middle Fork Willamette 5th field watershed that have either already been closed by previous NEPA decisions or have closed naturally (by encroaching vegetation or drainage related problems) is being treated for hydrological stabilization. This work is covered with a Categorical Exclusion and Decision Memo.

- Weed reduction treatments

- Ongoing road maintenance efforts (brushing, ditch cleaning, blading, etc)
- Recreation activities including dispersed camping, hunting, hiking, mountain biking, ATV use, snowmobiling.

- Replanting burned areas in the Tumblebug Fire, 500 acres in the fall of 2011.

3) Reasonably Foreseeable Future Actions

- At this time, there is one future timber harvest project, the Tumblebug Fire Roadside Treatment Project, scheduled for implementation in 2012. The project consists of felling hazard trees within areas approximately 150 feet below the roads and 300 feet above the roads. In lower mortality areas, felled trees will be left in place. In higher mortality areas, felled trees will be removed through timber sale contract in 51 treatment units covering 497 acres. An estimated 15.0 million board feet of commercial material will be made available for removal from these units through timber sale contract. About 43 miles of road within the fire area will receive low-level maintenance in order to support traffic associated with proposed activities. Within the hazard tree treatment areas, replanting is required and will be accomplished within five years.

- Respect the River (phase 2) Project will minimize resource impacts at an additional 15 dispersed campsites along the Middle Fork Willamette River and improve riparian health. This will be accomplished by reducing the number of user created trails, limiting site size, limiting motor vehicle access to the riparian zone, scarifying or subsoiling compacted soils, planting native vegetation, and displaying educational Respect the River signage.

- Routine maintenance for roads, (ongoing).

- Invasive weed treatments (ongoing).

- Routine hazard tree assessment and management (ongoing).

- Silvicultural maintenance and improvements to managed plantations, including precommercial thinning and pruning.

- Prescribed fire in approximately 200 acres of special habitat (Quail Meadow) to provide habitat for rare plant species, as part of the Calapooya Divide II Meadow Restoration project.

- Noisy/Found Culvert Replacement. This project will replace the Noisy Creek and Found Creek culverts on FS Rd. 2100 with stream simulation design structures that will provide fish passage and meet the flow needs of a 100-year flood event. The existing culverts prevent the passage of fish. The project NEPA and design have been completed but the project is not yet funded.

- Middle Fork Restovert Project (2012-2013). Placement of approximately 1,100 pieces of large wood in three tributary streams to the Middle Fork Willamette River. Replacement of culverts on Windfall, Maple, and Coal Creek with structures that allow aquatic organisms to pass during all life stages.

- Replanting burned areas in the Tumblebug Fire, 500 acres in 2012.

- Any future action proposed in this watershed will would be in compliance with Forest Plan standards and guidelines designed to keep cumulative effects from preventing the achievement of desired future conditions.
Appendix C – Aquatic Conservation Strategy Objectives

As part of the Record of Decision (ROD) for Northwest Forest Plan (Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl - USFS, BLM 1994), the Aquatic Conservation Strategy (ACS) was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. A goal of this strategy is to maintain a "natural" disturbance regime. In addition, management activities must comply with nine objectives that are included in the strategy. A variety of tactics to accomplish these goals and objectives are incorporated into four primary components. These components are: Riparian Reserves, Key Watersheds, Watershed Analysis, and Watershed Restoration.

These four components, along with Late Successional Reserves, are designed to operate together to maintain and restore the productivity and resiliency of riparian and aquatic ecosystems. The emphases on integration of forest and stream management objectives and the implication of natural disturbance regimes are closely aligned with the goals and objectives of the Aquatic Conservation Strategy. What follows is a discussion of how the activities proposed in the action alternative (alternative B) conform to the nine objectives of the ACS.

Aquatic Conservation Strategy Objectives

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

Harvest and prescribed fire prescriptions for proposed units were developed so that the treatment would, to the extent possible, resemble the effects of the natural fire regime that historically occurred in the vicinity of each unit or special habitat. The objectives for the treatments are to develop stand structures that would maintain existing habitat, while creating conditions resembling those that would occur in the presence of the historic natural fire regime. The commercial thinning of this project would occur in managed stands that now lack natural complexity and diversity due to past harvest and replanting. This would provide a balance between the maintenance of existing habitat for species, populations, and communities, with opportunities to develop landscape scale features with distribution, diversity and complexity typical of landscapes that developed under fire regimes that historically occurred in the area. This includes aquatic and riparian elements of the landscape.

The complexity and diversity of aquatic systems within the Pioneer Gulch Project area would be protected by recognizing no-cut buffer areas within the Riparian Reserves. The proposed action alternative would thin 286 acres of Riparian Reserve within the project area. Variable density thinning (VDT) would incorporate needed diversity and complexity back into these riparian areas while using no-cut primary shade zone protection to retain shade and micro climate near streams. These features would ensure the protection of the aquatic system as a whole.
Objective #2 - Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.

Networks of Riparian Reserves cover all streams within the project area providing spatial connectivity. Thinning within the Riparian Reserves outside the no-cut buffers with VDT does not change that characteristic of the Riparian Reserve network, nor would it alter the existent temporal connectivity that occurs naturally in the watershed. Treatments are proposed within Riparian Reserves where they have the potential to enhance functions such as the development of future large wood, stand structural diversity, vegetative species richness and diversity, and other late successional characteristics. This design criteria within the preferred alternative, assures that project actions within Riparian Reserves during treatments do not affect either spatial or temporal connectivity.

Road treatments include upgrade of stream crossings to accommodate 100-year flood events, so that these events can flow through the landscape unimpeded and without the risk of catastrophic fill failures. Where needed, these crossings would be retrofitted to permit passage of fish, amphibian, and other aquatic and riparian species, to and from wetland habitat located both upstream and downstream of the crossing. On selected roads, stabilization would occur to either maintain or restore hydrologic flow paths and assure proper downstream connectivity on unused road infrastructure.

Maintaining the road system would give the opportunity to upgrade stream crossings and to impose an additional 18.4 miles of road for closure. There would be no construction of permanent roads.

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

All harvest treatments restrict the use of ground disturbing equipment in and around streams and within no-cut buffers, and provide for retention of all vegetation that is contributing to the stability of banks and channels. Where aerial yarding methods are prescribed, full suspension is required when yarding over streams to prevent disturbance of stream banks and channels.

Roads are a known potential source of damage to stream habitat, where improper design or location, or inadequate maintenance results in failures or roadway erosion. A total of 55.5 miles of road would be maintained and undersized or old culverts would be replaced improving drainage issues, and applying aggregate where necessary would likely reduce the risk of chronic, low amplitude sources of fine sediment from reaching the stream network. A total of 6.4 miles of temporary spur roads would be needed for haul and closed when the project work is complete.

Maintenance of portions of the existing road network that are in poor repair, replacement of undersized or old culverts, drainage improvement, and application of aggregate where necessary would reduce chronic, low amplitude sources of fine sediment from the existing transportation system as well as the potential of crossing fill failures that could cause stream bed scour during debris torrents. This would reduce the possibility of fine sediment becoming embedded in gravels and cobbles in stream channel bottoms or the deposition of large amounts of material that could aggrade channels and cause widening and subsequent riparian damage.
Objectives #4 and #5 - Maintain and restore water quality necessary to support healthy riparian, aquatic and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.

Project design criteria intended to maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations, as discussed above under Objective 3, provide protection to water quality from the introduction of sediment into streams and resulting effects on stream turbidity. These criteria include no-cut buffers that protect existing shade and filter any potential effects of harvest.

Many of the roadwork projects would likely reduce existing sources of sediment-induced turbidity. Roads are a known potential source of damage to stream habitat, where improper design or location, or inadequate maintenance results in failures or roadway erosion. By keeping the road system opened and in a maintained condition, future road related maintenance issues that arise would be dealt with as needed. If the road system is allowed to digress to an unmaintained condition, than elements of the sediment regime would likely change for the worse as well. Road failures would not be able to be corrected and the frequency of failures would likely increase.

Objectives #6 and #7 - Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration and spatial distribution of peak, high, and low flows must be protected. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.

Implementation of a landscape design that is intended to restore vegetative structures, landscape patterns, and disturbance regimes to a more natural condition would result in watershed conditions that more closely resemble those under which historic stream flow conditions developed.

In the short term, potential adverse effects on the timing, magnitude, duration, and spatial distribution of peak and high flows would be minimized by managing the planning sub-drainages within the analysis area to Aggregate Recovery Percentage (ARP) levels that comply with the Willamette National Forest Land and Resource Management Plan, (Willamette National Forest, 1990)

Floodplains and wetland areas were excluded from consideration for harvest activities and where treatment units occur adjacent to these features, ground-based equipment that could impact the soil and result in altered ground water movement are restricted.

Maintaining the no-cut buffers within the Riparian Reserves would sustain aquatic habitats and maintain a near complete and larger level of future wood routing to the streams and floodplains, with more utility to the stream environments.
Objective #8 - Maintain and restore the species compositions and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distribution of coarse woody debris sufficient to sustain physical complexity and stability.

Harvest and prescribed fire prescriptions for proposed units were developed so that the treatment would, to the extent possible, resemble the effects of the natural fire regime that historically occurred in the vicinity of each unit. The objectives for the treatments are to develop stand structures that would maintain existing habitat, while creating conditions resembling those that would occur in the presence of the historic natural fire regime.

This would provide a balance between the maintenance of existing habitat for species, populations, and communities, with opportunities to develop landscape scale features with distribution, diversity and complexity typical of landscapes that developed under fire regimes that historically occurred in the area. This would create conditions that favor development species composition and structural diversity of plants across the landscape of the Pioneer Gulch Project Area, including riparian areas and wetlands.

Stands in Riparian Reserves are proposed for treatment to encourage development of large wood and late successional stand structure, where possible to do so without risk to bank and channel stability, and where effective stream shade can be retained to provide thermal regulation.

Wetlands and floodplain areas that are critical to nutrient filtering are eliminated from treatment areas and use of ground-disturbing equipment adjacent to them is restricted.

Use of low severity fire is restricted to portions of Riparian Reserves where the risk of adverse effects on ground cover and duff retention cannot impact water quality. However, portions of Riparian Reserves that would be treated are expected to develop a more diverse pattern of small openings and patches, and a richer vegetative species composition and diversity.

Actions of the Pioneer Gulch Project would in no way negatively change the species compositions or structural diversity of plant communities in Riparian Reserves. The thinning prescriptions within the Riparian Reserves would help to create more diverse understory vegetation, and larger healthier trees, that would benefit the streams by increasing deep pools, forage areas, capture sediment and spawning areas.

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

Implementation of the Pioneer Gulch Timber Sale Project is intended to restore landscape processes, vegetative structures, and landscape patterns to more natural conditions, and would restore the ability of the landscape to create a rich variety of habitats for native species. Where project activities have potential to affect existing native plant and animal species within the project area, designation of buffered areas or use of specific project criteria would maintain intact populations. Gaps of 1 to 3 acres would be created to support well-distributed populations of riparian- dependent species. Thinning within the Riparian Reserves would contribute to larger trees in the future to contribute to the stream channels as LWD.
## Appendix D – Soil Restoration (Subsoiling)

Soil Restoration (Sub-soiling) by Unit and Logging System:

<table>
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<tr>
<th>Unit (Activity Area)</th>
<th>Logging System</th>
<th>Acres (by logging system)</th>
<th>Landings (2% of acres for ground-based, 1.5% for skyline)</th>
<th>Skid Trails (5% of ground-based acres)</th>
<th>Total Restoration Acres by Unit and Logging System</th>
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* S = Skyline and G = Ground-based logging system

Shaded rows indicate units that the purchaser will be required to sub-soil primary skid trails
Appendix E – DecAID Analysis of Dead Wood in the Upper Middle Fork Willamette River Watershed

The Pioneer Gulch Project area totals about 37,195 acres. Habitat in this area is primarily representative of the Westside Lowland Conifer Hardwood (WLCH).

Data presented below display estimated current percent of the Upper Middle Fork Willamette River watershed for the two dominant wildlife habitat types (WLCH) in different snag and downed wood densities based on Gradient Nearest Neighbor (GNN) analysis of forest inventory plot data (LEJAVA 2009) for the watershed. A historic reference condition is also developed using snag and downed wood abundance derived from plot data in unmanaged stands throughout the habitat type and an assumed fire regime interval for the watershed that estimates the average amount of the habitat in different successional stages. This information is calculated for both total snags (≥ 10” dbh) and downed logs (≥ 5” diameter) and for large (≥ 20” diameter) logs and large (≥ 20” dbh) snags. Snag data are given as snags/acre and downed wood data are given as percent cover. DecAID assesses down wood levels in specific habitats against natural ranges by considering volume as percent cover. DecAID selects percent cover because it best describes down wood abundance as it relates to wildlife use (Mellen-McLean et al. 2011).

Predictions generated by methods such as GNN for vegetation conditions are appropriate for regional-scale analyses but are recognized as insufficiently accurate for most site-level application (LEJAVA 2009). Including a broad range of size and structural stage data when considering current dead wood levels for affected habitat results in utilizing data that is less specific to the project area.

SNAGS

For Lowland Conifer/Hardwood Forests in the UMF Watershed, the estimated median number of large snags (≥ 20” dbh) Pre-TF is 2/acre compared to an estimated historic median reference condition of 5/acre for the Westside Lowland Conifer/Hardwood Forests of the Oregon Cascades. The estimated median number of large snags Post-TF in this WHT (wildlife habitat type) is 2.1/acre (Figure E-1).

For Lowland Conifer/Hardwood Forests in the UMF Watershed, the estimated median number of total snags (≥ 10” dbh) Pre-TF is 5.5/acre compared to an estimated historic median reference condition of 12/acre for the Westside Lowland Conifer/Hardwood Forests of the Oregon Cascades. The estimated median number of snags Post-TF in this WHT is 14.5/acre (Figure E-4).

An additional estimate for snag levels in unmanaged WLCH or MMC habitat within the UMF watershed that is more specific to the Tumblebug Fire area can be derived based on the influence
Figure E-1: Comparison of Large (≥ 20" DBH) Snag Densities in Westside Oregon Cascade Lowland Conifer/Hardwood Forests in the Upper Middle Fork Willamette Watershed Pre and Post-Tumblebug Fire to Reference Conditions.

Figure E-2: Comparison of Total (≥ 10" DBH) Snag Densities in Westside Oregon Cascade Lowland Conifer/Hardwood Forests in the Upper Middle Fork Willamette Watershed Pre and Post-TF to Reference Conditions.
Figure E-3. Comparison of Large (≥ 20" DBH) Snag Densities in Montane Mixed Conifer Forests in the Upper Middle Fork Willamette Watershed Pre and Post-Tumblebug Fire to Reference Conditions

Figure E-4. Comparison of Total (≥ 10" DBH) Snag Densities in Montane Mixed Conifer Forests in the Upper Middle Fork Willamette Watershed Pre and Post-TF to Reference Conditions
of fire severity on post-fire snag levels. The Tumblebug Fire area overlaps about 10% of the Pioneer Gulch Project Area and lies directly adjacent to its western boundary. The snag level estimate is dependent on a set of assumptions that warrants consideration against GNN analysis values presented above. These assumptions are used for assigning post-wildfire CWD levels to GNN-modeled current forested habitat, and are based on data from west Cascades wildfires dating back to 1987. Much of the data behind assumptions is specific to fires on the Middle Fork District, has been incorporated into DecAID, and is considered to reinforce the validity for applying to the Tumblebug fire post-burn condition (Kertis pers com).

A key aspect for applying assumptions is that post-fire conditions met or exceeded 50% moderate to severe mortality in higher elevation habitat (MMC) and 36% similar mortality in lower elevation habitat (WLCH). These conditions were exceeded in the Tumblebug fire. Under such a scenario the following conditions have been assumed:

- Total snags ≥ 10” dbh are boosted to ≥ 80% tolerance level (tl) for the first 15 years before dropping to post-fire large snag levels. This equates to about 23 snags/acre for MMC WHT (wildlife habitat type) and 21 snags/acre for WLCH WHT (DecAID Figures MMC_L.inv-14 and WLCH_OCA_L.inv-14).

- Snags ≥ 20” dbh are boosted to ≥ 80% tl for the first 30 years, then drop to 50% tl for the next 20 years. This equates to about 13 snags/acre for MMC WHT and 10 snags/acre for WLCH WHT at 80% tl, dropping to about 8 and 6 snags/acre respectively at 50% tl (DecAID Figures MMC_L.inv-15 and WLCH_OCA_L.inv-15).

The values are considerably higher than those referenced and displayed in the previous figures, although they are specific to the Tumblebug Fire area as opposed to the entire UMF watershed. If these assumed values were factored into the overall watershed snag levels, the difference between Pre-TF and Post-TF snag levels would be greater than those indicated based on a very coarse and conservative approach.

DOWN WOOD

For Lowland Conifer/Hardwood Forests in the UMF Watershed, the estimated Pre-TF median % cover of large logs (≥ 20” diameter) is 2% compared to an estimated historic median reference condition of 1.5% for the Westside Lowland Conifer/Hardwood Forests of the Oregon Cascades (Figure E-5).

For Lowland Conifer/Hardwood Forests in the UMF Watershed, the estimated Pre-TF median % cover of downed logs (≥ 5” diameter) is 4% compared to an estimated historic median reference condition of 5% for the Westside Lowland Conifer/Hardwood Forests of the Oregon Cascades (Figure E-6).

For Montane Mixed Conifer Forests in the UMF Watershed, the estimated Pre-TF median % cover of large logs (≥ 20” diameter) is 3.5% compared to an estimated historic median reference condition of 0.5% (Figure E-7).

For Montane Mixed Conifer Forests in the UMF Watershed, the estimated Pre-TF median % cover of downed logs (≥ 5” diameter) is 6.5% compared to an estimated historic median reference condition of 3.5% (Figure E-8).
Figure E-5. Comparison of Pre-Tumblebug Fire % Cover of Large (≥ 20" Dia.) Downed Logs in Westside Oregon Cascade Lowland Conifer/Hardwood Forests in the Upper Middle Fork Willamette Watershed to Reference Conditions.

Figure E-6. Comparison of Pre-TF % Cover of Total (≥ 5" Dia.) Downed Logs in Westside Oregon Cascade Lowland Conifer/Hardwood Forests in the Upper Middle Fork Willamette Watershed to Reference Conditions.
Figure E-7  Comparison of Pre-Tumblebug Fire % Cover of Large (≥ 20" Dia.) Downed Logs in Montane Mixed Conifer Forests in the Upper Middle Fork Willamette Watershed to Reference Conditions

Figure E-8.  Comparison of Pre-TF % Cover of Total (≥ 5" Dia.) Downed Logs in Montane Mixed Conifer Forests in the Upper Middle Fork Willamette Watershed to Reference Conditions
An estimate for down wood levels in unmanaged WLCH or MMC habitat within the UMF watershed that is more specific to a Post-TF condition for the Tumblebug Fire area which overlaps the Pioneer Gulch Project area can be derived based on the influence of fire severity on post-fire down wood levels. Such an estimate is dependent on a set of assumptions that warrants consideration against GNN analysis values presented above. These assumptions are used for assigning post-wildfire CWD levels to GNN-modeled current forested habitat, and are based on data from west Cascades wildfires dating back to 1987. Much of the data behind assumptions is specific to fires on the Middle Fork District, has been incorporated into DecAID, and is considered to reinforce the validity for applying to the Tumblebug fire post-burn condition (Kertis pers com).

A key aspect for applying assumptions is that post-fire conditions met or exceeded 50% moderate to severe mortality in higher elevation habitat (MMC) and 36% similar mortality in lower elevation habitat (WLCH). These conditions were exceeded in the Tumblebug fire. Under such a scenario the following conditions have been assumed:

- Total down wood levels (≥ 5” diameter) are boosted to ≥ 80% tolerance level (tl) for the first 20 years before dropping to post-fire large log levels. This equates to about 8% cover for MMC WHT (wildlife habitat type) and 9% cover for WLCH WHT (DecAID Figures MMC_L.inv-16 and WLCH_OCA_L.inv-16).
- Large log levels (≥ 20” diameter) are considered boosted to ≥ 80% tl for modeling purposes. This equates to about 4% cover for MMC WHT and 5% cover for WLCH WHT (DecAID Figures MMC_L.inv-17 and WLCH_OCA_L.inv-17).

These values are somewhat to considerably higher than those referenced and displayed in the previous figures, although they are specific to the Tumblebug Fire area as opposed to the entire UMF watershed. If these assumed values were factored into the overall watershed down wood levels, Pre-TF and Post-TF values would be distinguished. And down wood levels at the watershed scale would further exceed the estimated reference conditions described above.

**WILDLIFE RELATIONSHIP TO DEAD WOOD**

DecAID provides data from a compilation of studies showing relationships of snag and downed wood abundance to wildlife occupancy of the site for a variety of wildlife species. These are expressed as tolerance levels. For example, the 50% tolerance level for large snags for nesting pileated woodpeckers is 7/acre for Westside Lowland Conifer/Hardwood Forests of the Oregon Cascades. This number indicates that half of pileated woodpeckers studied in this wildlife habitat would be expected to nest at sites with 7 or fewer large (≥ 20” dbh) snags/acre. Many factors influence the population density and habitat selection of species that are associated with dead wood abundance. In general though, the greater the abundance of snags and downed wood and the larger the snags and downed logs, the better the habitat conditions for the “dead wood dependent” species, and standards and guidelines for retaining snags and downed wood were developed around these relationships.

Snags densities above the 50% tolerance level were used to estimate the amount of “above average” habitat for the species, while the amount of habitat meeting the 30–50% tolerance interval were used to represent the amount of “moderate quality” dead wood habitat.

Species-specific information in DecAID was reviewed for species found in the project watershed with snag and downed wood relationship studies comparable to the forest inventory plot data. From these studies, PETS species, MIS species, and key prey species of northern spotted owl.
were selected. Then tolerance levels for these species were compared to estimated current and historic snag and downed wood abundance. DecAID provided tolerance levels for the following species:

1) Westside Lowland Conifer/Hardwood Forests of the Oregon Cascades:
   a) Pileated woodpeckers-MIS (large snag density at nesting and foraging sites, large log cover at foraging sites) and
   b) Northern flying squirrel-important prey for NSO (total snag densities and total log cover in occupied habitat)

2) Montane Mixed Conifer Forests-(available wildlife use data is limited for species that normally occur in this habitat in the UMF watershed):
   a) Marten-MIS (large and total snag density and total log cover at occupied sites).

Note: DecAID shows information for % total log cover ≥ 8” diameter compared to ≥ 20” diameter in the inventoried plot data. DecAID shows information for % total log cover ≥ 4” diameter compared to ≥ 5” diameter in the inventoried plot data. Only the 50% tolerance level is given in DecAID for % total log cover for marten.

The large snag analysis suggests that currently the UMF watershed is below historical levels for large snags in Westside Lowland Conifer/Hardwood habitat both Pre and Post-TF and providing less nesting and foraging habitat for pileated woodpeckers than was provided in the estimated historic condition (Table E-1). An estimated 19% and 23% of this habitat type meets or exceeds large (≥ 20” dbh) snag densities at the 50% tolerance level for pileated woodpecker nesting sites Pre and Post-TF respectively, compared to 32% of the estimated historic habitat. An estimated 6% and 10% of the habitat meets or exceeds large snag densities at the 50% tolerance level for pileated woodpecker foraging sites Pre-TF and Post-TF respectively, compared to 13% of the estimated historic habitat. DecAID inventory data for pileated woodpecker habitat use are from the Oregon Coast Range and Olympic Peninsula where snags are known to be larger and more common than in the Oregon Western Cascades. Tolerance level data in this table should be viewed as reflecting a general trend rather than absolute values.

The total snag analysis also shows that currently the UMF watershed is below historical levels for total snags in Westside Lowland Conifer/Hardwood habitat both Pre and Post-TF and providing less snag habitat for northern flying squirrels than was provided in the estimated historic condition (Table E-1). An estimated 34% and 40% of this habitat type meets or exceeds total (≥ 10” dbh) snag densities at the 50% tolerance level for occupied northern flying squirrel sites Pre and Post-TF respectively, compared to 58% of the estimated historic habitat.

When large snag and total snag data are considered for WLCH_OCA habitat in the Tumblebug Fire area portion of the overall watershed, current values are shown to be equal to or greater than projected reference conditions shown in Table E-1. Taking the cumulative Tumblebug fire snag levels into account is an important component of dead wood evaluation for the Pioneer Gulch Project Area.

Missing from this analysis based on model output is the recognition that, in addition to snags, defective live trees provide an important function in this habitat type. Studies have shown defective live trees are important for supporting pileated woodpecker (Aubry and Raley 2002) and spotted owl (Hershey et al. 1998) use in habitat where such features occur. A conservative
estimate can be made that at least 30% of the WLCH and MMC habitat in the UMF watershed consists of late-successional or old-growth habitat having defective live tree characteristics. This is a relevant qualitative consideration that additional current large “snag” habitat exists that is not represented by data displayed in Table 4.

Table E-1. Estimated % of Forest Habitat Type (WHT) Meeting Snag Density Tolerance Levels for Key Wildlife Species; Pre and Post-TF vs. DecAID Historic Reference Condition (UMF Watershed)

<table>
<thead>
<tr>
<th>Habitat and Wildlife Species Use</th>
<th>Dead Wood Feature</th>
<th>Wildlife Tolerance Level</th>
<th>% of Habitat Meeting Toler. Level</th>
<th>Pre TF</th>
<th>Post TF</th>
<th>DecAID Historic Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Westside Lowland Conifer/Hardwoods, Oregon Cascades (WLCH_OCA)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pileated Woodpecker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nesting Sites</td>
<td>Snags≥ 20”dbh</td>
<td>&gt;30% T. L.</td>
<td>30%</td>
<td>32%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Snags≥ 20”dbh</td>
<td>&gt;50% T. L.</td>
<td>19%</td>
<td>23%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foraging Sites</td>
<td>Snags≥ 20”dbh</td>
<td>&gt;30% T. L.</td>
<td>16%</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Snags≥ 20”dbh</td>
<td>&gt;50% T. L.</td>
<td>6%</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Northern Flying Squirrel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupied stand</td>
<td>Snags≥ 10”dbh</td>
<td>&gt;30% T. L.</td>
<td>56%</td>
<td>60%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Snags≥ 10”dbh</td>
<td>&gt;50% T. L.</td>
<td>34%</td>
<td>40%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Montane Mixed Conifer (MMC)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marten</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupied site</td>
<td>Snags≥ 20”dbh</td>
<td>&gt;30% T. L.</td>
<td>52%</td>
<td>54%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Snags≥ 20”dbh</td>
<td>&gt;50% T. L.</td>
<td>50%</td>
<td>52%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupied site</td>
<td>Snags≥ 10”dbh</td>
<td>&gt;30% T. L.</td>
<td>55%</td>
<td>59%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Snags≥ 10”dbh</td>
<td>&gt;50% T. L.</td>
<td>49%</td>
<td>54%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table E-2. Estimated % of Forest Habitat (WHT) Meeting Down Wood Cover Tolerance Levels for Key Wildlife Species; Pre-Tumblebug Fire vs. DecAID Historic Reference Condition (UMF Watershed)

<table>
<thead>
<tr>
<th>Habitat and Wildlife Species Use</th>
<th>Dead Wood Feature</th>
<th>Wildlife Tolerance Level</th>
<th>% of Habitat Meeting T.L.</th>
<th>Pre-TF</th>
<th>DecAID Historic Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Westside Lowland Conifer/Hardwoods, Oregon Cascades (WLCH_OCA)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pileated Woodpecker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foraging Sites</td>
<td>Logs≥ 20”diameter*</td>
<td>&gt;30% T. L.</td>
<td>&gt;52%*</td>
<td>&gt;48%*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Logs≥ 20”diameter*</td>
<td>&gt;50% T. L.</td>
<td>&gt;45%*</td>
<td>&gt;33%*</td>
<td></td>
</tr>
<tr>
<td><strong>Northern Flying Squirrel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupied stand</td>
<td>Logs≥ 5”diameter**</td>
<td>&gt;30% T. L.</td>
<td>55%</td>
<td>72%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Logs≥ 5”diameter**</td>
<td>&gt;50% T. L.</td>
<td>34%</td>
<td>37%</td>
<td></td>
</tr>
<tr>
<td><strong>Montane Mixed Conifer (MMC)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marten</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Habitat and Wildlife Species Use

<table>
<thead>
<tr>
<th>Dead Wood Feature</th>
<th>Wildlife Tolerance Level</th>
<th>% of Habitat Meeting T. L.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logs ≥ 5” diameter**</td>
<td>&gt;50% T. L.</td>
<td>39%</td>
</tr>
</tbody>
</table>

*DecAID shows information for % total log cover ≈> 8” diameter compared to ≥ 20” diameter in the inventoried plot data. Thus the % of habitat in the above the tolerance limit is substantially underestimated, but is shown to compare the relative difference between the current and historic condition.**

**DecAID shows information for % total log cover ≥ 4” diameter compared to ≥ 5” diameter in the inventoried plot data. Thus the % of habitat in the above the tolerance limit is somewhat underestimated. Only the 50% tolerance level is given in DECAID for % total log cover for marten.
Appendix F – Consistency with Direction and Regulation

The action alternatives all comply with the following legal and policy requirements as follows:

Federal Laws and Policies

The National Historic Preservation Act – 1966 as amended (most recently) in 2006

The National Historic Preservation Act of 1966---All areas proposed for ground-disturbing activities have been surveyed for the presence of cultural resources. All surveyed and inventoried cultural resource sites in the Pioneer Gulch planning area would be protected by avoidance, or mitigated through data collection. See the Project Review Form Heritage Resources document in the Analysis File for more information.

Consultation with the Oregon State Historic Preservation Officer (SHPO)

The project has been reviewed and approved by the Forest Heritage Specialist consistent with the 2004 Programmatic Agreement between the SHPO, ACHP and Oregon National Forests. The Forest Heritage Specialist certifies that the undertaking would have no effect on historic properties as per 36 CFR 800.16(i) and has forwarded the project report to SHPO for review (see the Heritage Resources Report in the Analysis File). When consultation with SHPO is complete, a signed Project Review form, indicating compliance with the federal laws and regulations cited previously under Section II of this document, would be provided for the project file.

The National Environmental Policy Act (NEPA), 1969

NEPA establishes the format and content requirements of environmental analysis and documentation such as the Pioneer Gulch Project environmental assessment. The entire process of preparing this environmental assessment was undertaken to comply with NEPA requirements, as codified by 40 CFR 1501 and the Forest Service Handbook 1909.15, Chapter 40.

The Endangered Species Act, December 1973, as amended

There are three species of animals listed as threatened under this Act that occur or utilize habitat within or adjacent to the project area. These are Chinook salmon, bull trout, and the northern spotted owl. There are no plants listed as threatened or endangered that have been found to occur in the area (see the project’s Botany Biological Evaluation in the Analysis File). Field surveys for all listed endangered, threatened, or sensitive species have been conducted to determine possible effects of any proposed activities in the Pioneer Gulch project area. Discussions of the effects on these species can be found in the Environmental Consequences section of this document under Water Quality, Fisheries, and Wildlife. More in depth discussions of habitat conditions, survey techniques and project effects are contained in the Fisheries Biological Assessment, the Hydrology and Fisheries Reports, and the Terrestrial Faunal Biological Evaluation/Assessment contained in the Analysis File for this project.

The National Forest Management Act (NFMA), 1976

This EA contains numerous references as to how this project complies with Forest Plan and Northwest Forest Plan standards and guidelines, usually parenthetically, and the Silvicultural Prescription in the Analysis File contains a discussion of compliance with NFMA's requirement
to identify lands unsuited for management. See also the discussion below regarding compliance with FSH 1909.

The Clean Water Act, as amended in 1977 and 1982

The alternatives all meet and conform to the Clean Water Act, Amended 1982. This Act establishes a non-degradation policy for all federally proposed projects. None of the action alternatives would degrade water quality below its current condition and standards set by the State of Oregon. This is accomplished through project design and planning, application and monitoring of Best Management Practices (BMPs; see the mitigating measures discussed above), and adherence to the Northwest Forest Plan's Aquatic Conservation Strategy Objectives (See the Hydrology and Fisheries and Reports and the water quality discussion in this EA). This project is in compliance with the Northwest Forest Plan Temperature Total Maximum Daily Load Implementation Strategy (USDA, 2005), which addresses water temperature concerns in compliance with the Clean Water Act. The Silvicultural Prescription in the project Analysis File determined that all action alternatives comply with this plan in that they would retain riparian buffers to avoid increases in water temperature.

Clean Air Act as Amended in 1977

The action alternatives are designed to meet the National Ambient Air Quality Standards, as per direction from the Oregon Smoke Management Act, through avoidance of practices which degrade air quality below health and visibility standards, as disclosed previously in this Chapter and is fully discussed in the Fuels Report (Mercado, 2012) contained in the Analysis File.

Forest Service Manual (FSM) and Handbook (FSH)

FSM 1926.41 indicates that all projects implementing Forest Plan direction that involve vegetative manipulation of tree cover must comply with the Forest Plan, and the National Forest Management Act (NFMA, 1976) requirements. This project also implements direction in FSM 2020 0, Ecological Restoration and Resilience, to integrate resource projects to accomplish ecological; restoration.

The Pioneer Gulch project complies with additional direction in the Forest Service Manual to identify and prescribe measures that prevent adverse modifications or destruction of critical habitat and other habitats essential for the conservation of proposed, endangered, threatened, and sensitive species (FSM2670.31 (6)).

Consistency with the Forest Plan

These proposals are in compliance with the Forest-wide and Management Area standards and guidelines presented in Chapter IV of the Forest Plan, as cited throughout this EA and the documents within the Analysis File (see also the detailed discussion below under Other NEPA Decision documents), aside from exceptions as discussed in the Mitigations section of Chapter 2 of this document and as discussed below.

The alternative selected for management of the Willamette National Forest includes a strategy that provides Management Requirements (MRs) exceeding the minimum MRs established for Management Indicator Species (MIS) as presented in the Willamette Forest Plan FEIS Appendices - Volume 1 (USDA Forest Service 1990b), pp B-79 through 82). Maintenance of the MRs ensures the viability of MIS and the species they represent. The MRs have been further enhanced for most MIS species (i.e. those species that use or select for old growth and mature
conifer habitat, and dead and defective tree habitat) under the Forest Plan S&Gs as amended by the Northwest Forest Plan.

Proposed actions associated with this project comply with current Forest-wide (FW) and Management Area (MA) Standards and Guidelines (S&Gs) pertaining to general wildlife and MIS management - including those MIS species also listed as proposed, endangered, threatened, or sensitive. This proposal also complies with other S&Gs established for affected allocations in the Willamette National Forest Land and Resource Management Plan (1990) as amended by the Northwest Forest Plan Records of Decision (ROD) (1994 & 2001).

For situations where they would apply, this project complies with Standards and Guidelines pertaining to snag and down wood management on matrix land. See the Dead Wood section of this report for further discussion on this.

**NFMA Consistency**

FSM 1921.12a directs that timber harvest can occur only where:

1. Soil slope or other watershed conditions would not be irreversibly damaged – the Soils and Hydrology discussions in Chapter 3 indicate this condition would be met.

2. There is assurance that lands can be adequately stocked within five years after final regeneration harvest – This direction does not apply to this proposal as no regeneration harvest is proposed. No total removal of forest cover is proposed. The purpose and need for action recognizes that there are too many trees on the sites in question to meet Forest Plan biodiversity objectives and guidelines. The NFMA does not require reforestation of areas harvested to provide non-timber benefits, such as providing for increased wildlife forage.

3. Streams, stream banks, shorelines, wetlands and other bodies of water are protected from detrimental change that could adversely affect water conditions or fish habitat – The proposal provides buffers along water bodies as detailed in the Water Quality section of Chapter 3, with the small exceptions of some streams that would be restored to their historic meadow conditions.

4. The harvesting system to be used is not selected primarily because it would give the greatest dollar return or the greatest output of timber.-The proposed systems for removing excess trees includes skyline which is not the lowest cost method of moving logs. Additionally, no regeneration harvest is proposed, and such harvest would be proposed if the objective of the proposed action was to generate the largest monetary return.

**Survey and Manage**

**Wildlife Species – Survey and Manage**

Projects that are within the range of the northern spotted owl are subject to the survey and management standards and guidelines in the 2001 ROD, as modified by the 2011 Settlement Agreement. On December 17, 2009, the U.S. District Court for the Western District of Washington issued an order in Conservation Northwest, et al. v. Sherman, et al., No. 08-1067-JCC (W.D. Wash.), granting Plaintiff’s motion for partial summary judgment and finding NEPA violations in the Final Supplemental to the 2004 Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines
The Pioneer Gulch Project is consistent with the Willamette National Forest Land and Resource Management Plan as 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* (USDA Forest Service and USDI Bureau of Land Management 2001), as modified by the 2011 Settlement Agreement.

The 2011 Settlement Agreement states:

“For projects with signed Records of Decision, Decision Notices, or Decision Memoranda from December 17, 2009, through September 30, 2012, the Agencies will use either of the following Survey and Manage species lists:

a. The list of Survey and Manage species in the 2001 ROD (Table 1-1, Standards and Guidelines, pages 41-51).

b. The list of Survey and Manage species and associated species mitigation, Attachment 1 to the Settlement Agreement.”

The Pioneer Gulch Project applies the Survey and Manage species list in the 2001 ROD and thus meets the provisions of 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* (2001 ROD), as modified by the 2011 Settlement Agreement.

The Willamette National Forest compiled the species in Table 35 from the 2011 Settlement Agreement Attachment 1. The list includes those vertebrate and invertebrate species with pre-disturbance survey requirements (Category A, B, or C species), who’s known or suspected range includes the Willamette National Forest according to:


This list also includes any Category D, E, or F species with known sites located within Pioneer Gulch Project Area:

Note that there are no known sites for *Megomphix hemphilli* (Oregon megomphix) within the project area that would require management under the 2001 ROD requirements.

There is little potential for habitat within the project area to support occupancy or use by other species for which a standard, guideline, or management recommendation was addressed in the 2001 ROD. These species include white-headed woodpecker, black-backed woodpecker, pygmy nuthatch, and flammulated owl. Each of these species generally occurs on the eastern and southern periphery of the range of the northern spotted owl. This project’s proposed action would
not affect suitable habitat for these species, or influence their distribution or population numbers to any extent relative to this portion of the range for the northern spotted owl.

The Pioneer Gulch Project applies a 2006 Exemption from a stipulation entered by the court in litigation regarding Survey and Manage species and the 2004 Record of Decision related to Survey and Manage Mitigation Measure in Northwest Ecosystem Alliance v. Rey, No. 04-844-MJP (W.D. Wash., Oct. 10, 2006). Previously, in 2006, the District Court (Judge Pechman) invalidated the agencies’ 2004 RODs eliminating Survey and Manage due to NEPA violations. Following the District Court’s 2006 ruling, parties to the litigation entered into a stipulation exempting certain categories of activities from the Survey and Manage standards and guidelines, including both pre-disturbance surveys and known site management. Also known as the Pechman Exemptions, the Court’s Order from October 11, 2006 directs:

“Defendants shall not authorize, allow, or permit to continue any logging or other ground-disturbing activities on projects to which the 2004 ROD applied unless such activities are in compliance with the 2001 ROD (as the 2001 ROD was amended or modified as of March 21, 2004), except that this order will not apply to:

- Thinning projects in stands younger than 80 years old;
- Replacing culverts on roads that are in use and part of the road system, and removing culverts if the road is temporary or to be decommissioned;
- Riparian and stream improvement projects where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning; and where the stream improvement work is the placement large wood, channel and floodplain reconstruction, or removal of channel diversions; and
- The portions of project involving hazardous fuel treatments where prescribed fire is applied. Any portion of a hazardous fuel treatment project involving commercial logging will remain subject to the survey and management requirements except for thinning of stands younger than 80 years old under subparagraph a. of this paragraph.”

Per the 2011 Settlement Agreement, the 2006 Pechman Exemptions remain in force:

“The provisions stipulated to by the parties and ordered by the court in Northwest Ecosystem Alliance v. Rey, No. 04-844-MJP (W.D. Wash. Oct. 10, 2006), shall remain in force. None of the following terms or conditions in this Settlement Agreement modifies in any way the October 2006 provisions stipulated to by the parties and ordered by the court in Northwest Ecosystem Alliance v. Rey, No. 04-844-MJP (W.D. Wash. Oct. 10, 2006).”

The Pioneer Gulch Project meets Exemptions A and D.

Botanical Species – Survey and Manage

The Willamette National Forest applied the 2001 ROD Survey and Manage Species List to the Pioneer Gulch project, completing pre-disturbance surveys, (Table A) required by Survey Protocols and Management Recommendations to comply with the 2001 Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines.

Project surveys discovered no sites with Survey and Manage botanical species.
Executive Orders

#11988 Floodplain Management and #11990 Protection of Wetlands
These orders direct Federal Agencies to avoid, to the extent possible, both short-term and long-term adverse impacts associated with the modification of floodplains and wetlands. None of the alternatives presented above have specific actions that adversely affect floodplains. Proposed activities comply with these orders and USDA Departmental Regulation 9500-3. See the discussions above regarding fisheries, soils, and watershed effects for more information.

#12898 Environmental Justice
The Pioneer Gulch Project is located about 28 road miles south of the Cities of Oakridge, and Westfir, and about 43 miles southeast of the City of Lowell, in Lane County, Oregon. These communities have minority populations of 15 percent, 10 percent, and 13 percent, respectively. Lane County, in its entirety, has a minority population of 15 percent, (U.S. Census Bureau, 2010).

Approximately 16.7% of the population in Lane County is at or below poverty level, (U. S. Census Bureau, 2010). According to information from the Oregon Economic and Community Development Department (OECDD), Lane County, (excluding areas within the city limits of Eugene, Springfield, Coburg and Dunes City), is rated 1.30, (threshold 1.20), on the distressed area index.(OECDD, 2002). These Cities, as well as much of Lane County, have experienced a significant decline in timber-based jobs over the past decade, contributing to factors used to determine distressed community status.

Implementation of the Proposed Action would provide the opportunity for employment, positively affecting low-income families who are either unemployed or underemployed. Implementation of either action alternative is not expected to impose a disproportionately high or adverse effect to those populations.

Subsistence and cultural use levels are difficult to quantify and differential patterns of subsistence consumption are unknown at this time. However, the Forest provides access to firewood, Christmas trees, mushrooms, and other consumables through a personal-use permit system. Middle Fork Ranger District records indicate the following for 2009: 1,714 cords of firewood were sold; 2,130 Christmas tree permits were sold; and 388 personal-use mushroom permits and another 360 commercial mushroom permits were sold. The Proposed Action road closures (13.86 miles of new closures) could have an impact on motorized vehicle accessibility to certain portions of the project area for subsistence gathering and tribal cultural uses, however there would still be about 115 miles of open road in the Pioneer Gulch project area for motorized access to these types of activities.

The proposed treatments have the potential to contribute to the supply of special forest products (SFP) available within the area, such as basic greenery plant species and some mushrooms. Interest in commercial harvest of SFPs is low in this area at this time, and supply far exceeds demand in the Middle Fork watershed. (See “Special Forest Products,” discussed under Other Disclosures, above).

Road closures may impact subsistence in the immediate project area, but these impacts would be mitigated by the availability of other access routes throughout the area.
#12962 Aquatic Systems and Recreational Fisheries

This Order was made to conserve, restore, and enhance aquatic systems to provide for increased recreational fishing opportunities. It requires Federal agencies to evaluate and document the effects of federally funded actions on these resources and opportunities. There is potential for sediment input into streams from the proposed actions, as discussion above in detail in the water quality section. These effects would be short-term and would not threaten fish species or population levels. Mitigating measures have been applied in all actions alternatives to minimize the potential of detrimental effects to fish habitat or water quality in general. These measures include provision of untreated riparian buffers along all stream classes, helicopter removal of trees, provision of various erosion control structures during the project life, road closure, culvert replacement, and restriction of culvert replacement and road maintenance work to dry periods. These mitigating measures are consistent with current management guidelines including the Willamette National Forest Plan Standards and Guidelines (USDA, 1990a, pages IV-59 to 65), the Aquatic Conservation Strategy Objectives contained in the Northwest Forest Plan (USDA/USDI, 1994, page B-11) at the watershed level, and the Federal Clean Water Act. Implementation of required and standard Best Management Practices (USDA, 1988) would ensure protection of aquatic resources and fishing opportunities under all alternatives.

#13007 Indian Sacred Sites

No specific sacred sites have been identified that would be affected by the proposed actions. No impacts, as outlined in the Indian Religious Freedom Act, are anticipated in terms of American Indian social, economic, or subsistence rights.

#13084 Consultation and Coordination with Indian Tribal Governments

The Willamette National Forest has Memorandums of Understanding (MOU) with the Confederated Tribes of the Grand Ronde, the Confederated Tribes of Warm Springs, and the Confederated Tribes of Siletz. These MOUs provide a mechanism for regularly scheduled consultations on proposed activities. Beyond this, the Forest notifies and consults with tribal governments in a manner consistent with the government-to-government relationship on any matters that ripen outside of the meeting schedule. The Willamette National Forest does not currently have an MOU with the Klamath Tribe, but the tribe has been consulted regarding this proposal. Several tribal organizations with the State of Oregon which have historic interests in this area have been contacted in reference to this planning effort. All four tribes were notified of the project during development of issues and alternatives.

#13112 Invasive Species

This Order requires Federal Agencies whose actions may affect the status of invasive species to prevent the introduction of invasive species, detect and respond rapidly to and control populations of such species, and provide for restoration of native species and habitat conditions in ecosystems that have been invaded, as well as other various requirements. The proposed actions all carry mitigating measures to assure invasive species do not move into the area as discussed above under the Vegetation effects section, and the purpose and need for action addresses restoration of native species and habitat in part through invasive plant species abatement.

#13186 Migratory Birds

The proposed action is consistent with the 1918 Migratory Bird Treaty Act (MBTA) and the Migratory Bird Executive Order 13186. Additional management direction for the conservation of migratory landbirds is consolidated in the Forest Service Landbird Strategic Plan and further
developed through the Partners in Flight Program. Vegetation management cannot completely avoid unintentional take of birds, regardless of criteria imposed on activities. Design criteria such as the overall implementation timeline, spatial distribution of treatment units, retention of snags and down logs, retention of live trees, and no treatment riparian areas proposed in this project would minimize take of migratory birds.

The Wildlife effects discussion above (Landbirds/Neotropical Migrants), addresses the effect to migratory birds, as well as in the Terrestrial Wildlife Report and Biological Evaluation contained in the project’s Analysis File (Ferland, 2012). When taken in the context of the watershed, the effects of any proposed actions are negligible.

State Laws

Oregon State Best Management Practices (BMPs)
State BMPs are employed to maintain water quality (see the Mitigating Measures listed in Chapter 2 of this EA and USDA, 1988).

The Oregon Smoke Management Plan
The Oregon State Implementation Plan and the Oregon State Smoke Management Plan would be followed to maintain air quality, as mentioned earlier in this Chapter. See Fuels Report contained in the Analysis File.

The Oregon State Water Quality Regulations (DEQ, 2004)
These regulations dictate how water resources are to be managed and protected; see the Hydrology and Fisheries Reports in the project Analysis File.

Other NEPA Decision Documents
The Willamette National Forest Land and Resource Management Plan (USDA, 1990a; as amended by USDA/USDI, 1994) played a major role in determining the Purpose and Need and in the development of all the alternatives. As mentioned above, the action alternatives comply with all aspects, standards, and guidelines of the Forest Plan. Rationale for compliance with these requirements can be found in the Hydrology and Fisheries and Wildlife Effects sections above, and the Silvicultural Prescription and the Wildlife Report contained in the project Analysis File, and in the above discussion on compliance with Federal Laws and Policies in this section. This analysis is tiered to the Final Environmental Impact statement for the Forest Plan (USDA, 1990b).

The Upper Middle Fork of the Willamette River Watershed Analysis (USDA Forest Service, 1996), the Upper Middle Fork Watershed Analysis Update (USDA Forest Service, 2002) and the Upper Middle Fork and Hills Creek Reservoir Watershed Analysis Update (USDA Forest Service, 2008) identified the needed activities and mitigation measures to comply with the Aquatic Conservation Strategy Objectives, and determines the width for Riparian Reserves.

The Willamette National Forest Road Analysis Report (USDA, 2003) and the Middle Fork District Supplemental Road Analysis (USDA 2004) recommended which system roads should remain open to facilitate management and public use and which should be closed to reduce maintenance costs and resources risk. The Forest Road Analysis provides decision makers with information needed to identify and manage a minimum road system that is safe and responsive to public needs and desires, is affordable and efficient, has minimal adverse effect upon ecological
processes and ecological health and productivity of the land, and is in balance with available funding for needed management actions. It provided recommendations for key roads that should remain open and well maintained as well as recommendations of roads that should be considered for closure.

The District road analysis evaluated each road segment on the District relating to terrestrial, aquatic, administrative, and public use factors. Based upon that rating system, road closure recommendations for the Districts road system were made. The roads in the project area proposed to be closed under all action alternatives developed for this project have all been recommended for closure in the two Road Analysis documents mentioned above.
## Appendix G – Scoping Comments

<table>
<thead>
<tr>
<th>Commenter and Date</th>
<th>Comment</th>
<th>Response</th>
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<tbody>
<tr>
<td>Oregon Wild</td>
<td>1-Support the significant changes in the proposed action.</td>
<td>1-Thank you for the comment.</td>
</tr>
<tr>
<td>November 23, 2011</td>
<td>2-In the fuelbreak, retain under-represented species like chinkapin and Pacific yew.</td>
<td>2-Chinkapin is quite common in the fuelbreak units, so if a few are cut, there would not be an effect on the species. Pacific yew does not occur in the fuelbreak units due to the high elevations.</td>
</tr>
<tr>
<td></td>
<td>3-Fuel break may be perpetuating the problem instead of meeting the core need of reintroducing fire.</td>
<td>3- The fuelbreak would allow more management options for fire in the wilderness in the future.</td>
</tr>
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<td></td>
<td>4-How useful is a fire break in an area with infrequent fire regime?</td>
<td>4- The Pioneer Gulch area is an area of high lightning frequency. The firebreak could be used as a place to start a backfire safely whether in response to wildfire, or as part of a planned burn.</td>
</tr>
<tr>
<td></td>
<td>5-Consider leaving more than 6 trees per acre in gaps.</td>
<td>5- An alternative that would leave four to six clumps of live trees per acre in each gap (in commercial thinning units) with three to five trees in each clump and patches of tall shrubs and/or small trees left within gaps was considered but eliminated from detailed study (see Chapter 2). The Proposed Action would leave 6 dominant and codominant trees per acre, and also trees &lt;7” diameter that are unmerchantable. The purpose and need for the gaps is to improve big game forage habitat in the project area. The more trees that are left in the gaps, the sooner the canopy would close and the sooner the forage benefit diminished.</td>
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<tr>
<td></td>
<td>6-Avoid road construction in unroaded areas&gt;1,000 acres and make sure treatments emphasize reintroduction of natural processes.</td>
<td>6- See response to Oregon Wild’s 2008 letter, below.</td>
</tr>
<tr>
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<td>7- Strongly support road closures and stabilization.</td>
<td>7- The Proposed Action closes and hydrologically stores (stabilizes) about 18 miles of system roads.</td>
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<td></td>
<td>8-Logging is prohibited in Riparian Reserves unless “needed” to obtain ACS objectives.</td>
<td>8-ACS objectives and how they are being met by the proposed action are discussed in the EA Appendix C.</td>
</tr>
<tr>
<td></td>
<td>9-Accelerating late successional conditions (as stated in the scoping letter) is not a goal of the (NW Forest Plan) Riparian Reserve land allocation. Thinning can reduce the overall recruitment of snags and dead wood in upland, riparian, and aquatic</td>
<td>9-The EA states in the Purpose and Need section that the goal of attaining late-successional conditions in the Riparian Reserves is a recommendation in the Upper Middle Fork Willamette River watershed analysis. Dead wood (snags and down</td>
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<td>ecosystems.</td>
<td>wood) are discussed in the EA Chapter 3, Wildlife section and in Appendix E (Decaid Analysis).</td>
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<td>10-Retain at least 100 foot no-cut buffers along streams and significant untreated “skips” in the outer portions of Riparian Reserves.</td>
<td>10-An alternative that would have provided for 100 foot no-cut buffers on all streams and retaining significant untreated “skips” within the outer portion of Riparian Reserves was considered but eliminated from detailed study (see Chapter 2). Under the Proposed Action, Class 1 streams and Skunk Creek (a class 2 stream) would have 100 ft buffers. Furthermore, it was determined that stream buffers of 60 ft on Class 2 and 3 streams are supported by the TMDL model (EA Chapter 3, Hydrology section). Also, 90% of wood recruitment occurs within 60 ft. of streams. Large, untreated skips within Riparian Reserves do exist in the portions of commercial thinning units that were dropped from proposed harvest treatments.</td>
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<td></td>
<td>11-Apply variable density thinning techniques, including gaps, skips, use heavy thinning sparingly, fully disclose effects of logging on dead wood, avoid spreading weeds, buffer streams from heavy equipment, disclose effects of biomass utilization, address carbon and climate by deferring harvest of older forest and thinning younger stands to increase resilience.</td>
<td>11- Alternative B does apply variable density thinning techniques, most units would be thinning to moderate or light spacing, effects on dead wood – see #9 above; Class 1 streams would be buffered by 50 ft from heavy equipment and perennial streams buffered by 100 ft. from heavy equipment; biomass utilization is not proposed in this project because of the distance to existing biomass markets although firewood utilization would occur; Alternative B defers harvest of older forests and thins younger stands.</td>
</tr>
<tr>
<td>Rocky Mountain Elk Foundation</td>
<td>1-Consider thinning below 40% crown closure to provide for early seral habitat.</td>
<td>1-Many of the commercial thinning units would have a post-harvest crown closure less than 45%, especially when considering the contribution of gaps.</td>
</tr>
<tr>
<td>November 8, 2011</td>
<td>2-Make gaps as large as possible, tending towards 2 to 3 acres.</td>
<td>2- Alternative B includes gaps ranging from 1 to 3 acres.</td>
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<td>3-Locate gaps away from open roads.</td>
<td>3-Gaps would be located 100 ft away from Level 2 and 3 roads.</td>
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<td>4-Plant gaps with native shrubs that produce fruit and nuts for wildlife and reduce the number of conifers left in gaps.</td>
<td>4-Larger gaps would be planted with elderberry, hawthorn, and cascara in addition to white pine and western redcedar. Six dominant/codominant trees per acre would be left in gaps to provide for structural diversity.</td>
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<td>5- Seed all soil disturbed with a native seed mix of high forage value.</td>
<td>5- The Willamette N.F. forage seed mix would be used.</td>
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<tr>
<td>Cascadia Wildlands Project</td>
<td>6-Restore natural openings and meadows by removing conifers.</td>
<td>6- Quail Meadow was moved into the Calapooya II Meadow Restoration project, however it is possible that funds generated by the Pioneer Gulch timber sales, if available, could be used to fund the restoration of Quail Meadow, which would include removing encroaching conifers.</td>
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<tr>
<td>July 7, 2009</td>
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<td></td>
<td>1-Don’t log in mature forests.</td>
<td>1-The mature thinning units have been dropped.</td>
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<td>2-Discuss compliance with Survey and Manage 2001 ROD.</td>
<td>2-Project complies with 2001 ROD. See EA Appendix F.</td>
</tr>
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<td>3-Focus creation of early seral habitat on younger stands.</td>
<td>3-Forage creation through gaps would occur in second-growth younger plantations. Forage treatment units are in young regeneration.</td>
</tr>
<tr>
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<td>4-Support road closures but urge decommissioning of as many of those roads as possible.</td>
<td>4- An alternative that would have decommissioned some of the roads proposed for closure was considered but eliminated from detailed study (see Chapter 2). It was determined that all of the roads proposed for closure have the potential to be needed in the future and would be stored for future use. Roads are only decommissioned if they will never be needed again.</td>
</tr>
<tr>
<td>Oregon Department of Fish and Wildlife December 12, 2008</td>
<td>1-Support restoration of Quail Meadow.</td>
<td>1-Quail Meadow restoration has been moved to the Calapooya II Meadow Restoration Project.</td>
</tr>
<tr>
<td></td>
<td>2-Recommend not doing Big Swamp restoration, currently providing suitable habitat.</td>
<td>2- Big Swamp restoration was dropped.</td>
</tr>
<tr>
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<td>3-Support commercial thinning, creation of 1-3 acre gaps, and prescribed burning.</td>
<td>3-Commercial thinning units would have 1-3 acre gaps. Four comm. thin units would be underburned after harvest.</td>
</tr>
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<td>4- Recommend not harvesting the overstory in shelterwood units.</td>
<td>4- Overstory removal in shelterwoods has been dropped.</td>
</tr>
<tr>
<td></td>
<td>5- Support road closures to lessen disturbance and harassment of wildlife.</td>
<td>5- Proposed Action includes 18 miles of road closures.</td>
</tr>
<tr>
<td>Oregon Wild October 28, 2008</td>
<td>1-Don’t log in naturally regenerated mature and late-successional stands.</td>
<td>1-Mature thinning units dropped.</td>
</tr>
<tr>
<td></td>
<td>2-Support variable density thinning with gaps of ¼ to ½ acre and skips in young managed stands.</td>
<td>2- Proposed Action includes 940 acres of thinning in young managed stands, including gaps of 1 to 3 acres. Larger gaps would maintain their function as big game forage areas longer. Tree canopies surrounding smaller gaps would begin to close in sooner, reducing the time the gaps would function as big game forage. Skips would be comprised</td>
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<td>3-Support careful thinning in Riparian Reserves.</td>
<td>3-Proposed Action includes 286 acres of thinning in Riparian Reserves. No-cut buffers would be used to protect stream banks and provide for shade to streams.</td>
</tr>
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<td>4-Avoid building new or temporary roads.</td>
<td>4-There would be no new system road construction. Alt. B includes about 2 miles of new temporary road and 4 miles of temporary road construction on previously used routes. All temporary roads would be closed and decommissioned after use.</td>
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<td></td>
<td>5- State whether there are any proposed activities in any of the five roadless areas &gt;1000 acres identified in scoping letter. Fully analyze any effects to these areas.</td>
<td>5- Two small understory fuelbreak units are planned in unroaded areas. See EA Chapter 3, Potential Wilderness and Other Undeveloped Areas.</td>
</tr>
<tr>
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<td>6-Need to know the spacing in the fuelbreaks. Analyze effects in fuelbreaks.</td>
<td>6- Spacing within fuelbreak units is described in EA Chapter 2. Effects from fuelbreaks are described in EA Chapter 3.</td>
</tr>
<tr>
<td></td>
<td>7-Alternatives considered for this project should include wildlife habitat enhancement (in addition to big game), late-successional habitat and stream restoration, old growth protection (minimum fragmentation and mechanical treatments), and focusing on non-commercial fuel treatments. Impacts to unroaded areas should be added as a significant issue, and an alternative that avoids negative impacts, while focusing on restoration surrounding these areas, should be developed.</td>
<td>7-The Proposed Action includes habitat enhancement for both big game and other species. For example, planting of hardwood trees and shrubs in the gaps within commercial thinning units would benefit both big game and other wildlife species. The proposed commercial thinning is not within Late-Successional Reserve. Late-successional habitat restoration was not considered a key issue because the proposed treatments are not located in a Late-successional Reserve. Stream restoration projects may occur at a later date but would be covered by separate NEPA. An alternative was considered but not given detailed analysis that would have not proposed any treatments in old growth stands, but it would not have met the purpose and need to reduce understory fuels in the fuelbreak along FS Rd. 2160. The Proposed Action does not propose any timber harvest within old growth stands. The Proposed Action proposes only non-commercial fuel treatments in the fuelbreak units. An alternative was considered that avoids negative impacts to unroaded areas and focuses on restoration surrounding these areas. This alternative was not given detailed study because the Proposed Action only has one small non-commercial fuel treatment unit in an Oregon Wild identified unroaded area in the Proposed Action and</td>
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</table>
| **American Forest Resource Council October 27, 2008** | 1-Like to see all timber sales be economically viable. Use temporary roads to access for economical yarding systems. Limit use of helicopter yarding.  
2-Encourage Forest Service to allow winter harvesting and haul.  
3-Allow mechanical harvesting and pre-bunching of processed logs on slopes <35%.  
4-Specify slash treatment goals rather than methods required.  
5-Encourage creation of small patch cuts up to 2 acres.  
6-Support thinning in Riparian Reserves with 25-50 foot buffers. | 1- The economic analysis for Pioneer Gulch shows a present net value of slightly over 100,000 dollars. All harvest units are planned for ground-based and skyline.  
2-Approximately 43 miles of the 55 miles of haul route would be suitable for winter haul. Timber Sale Officer, Hydrologist, and Fishery Biologist will decide if hauling operations need to be shut down due to deteriorating road conditions. See EA Chapter 2 Mitigation Measures.  
3-Mechanical harvesting and pre-bunching would be allowed on slopes <30% as designated in EA Chapter 2 Mitigation Measures.  
4-Slash treatment is discussed in the EA Chapter 3, Fire and Fuels.  
5- Patch cuts, or gaps, up to 3 acres are proposed. Larger gaps would maintain their function as big game forage areas longer.  
6-Thinning in Riparian Reserves would occur in about 286 acres. Buffers of 30-100 feet are prescribed to provide for habitat needs of listed bull trout and spring Chinook salmon. |
| **Rocky Mountain Elk Foundation October 22, 2008** | 1-Support variable density thinning and gaps of 2-3 acres.  
2-Recommend using standard Willamette N.F. forage seed mix, which contains legumes with high value forage, as opposed to standard erosion seed mix.  
3-Recommend that natural meadows be restored by removing encroaching conifers. | 1-Patch cuts, or gaps, up to 3 acres are proposed. Larger gaps would maintain their function as big game forage areas longer.  
2-See response #5 to 2011RMEF letter, above.  
3-See response to #6 to 2011 RMEF letter, above. |