Environmental Assessment

Sardine Project

Detroit Ranger District, Willamette National Forest

Legal Location: T9S R5E, sections 30 & 31; T10S R5E sections, 5, 6, 7, 8, 17, and 18 of the Willamette Meridian, Marion County, Oregon.

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1. Purpose and Need for Action

1.1 Document Structure

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into five parts:

**Purpose and Need:** This section describes the project area, the purpose and need for the project, and the agency’s proposal for achieving that purpose and need. This section also outlines applicable management direction, details how the Forest Service informed the public of the proposal, and the list of issues identified from the public.

**Comparison of Alternatives, including the Proposed Action:** This section provides a detailed description of the agency’s proposed action and other alternatives considered.

**Environmental Consequences:** This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area. Within each section, the existing condition is described first, followed by the effects of the no action alternative that provides a baseline for evaluation and comparison with the Proposed Action.

**Agencies and Persons Consulted:** This section provides a list of preparers and agencies consulted during the development of the environmental assessment.

**Appendices:** The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record at the Detroit Ranger District Office in Detroit, Oregon.

1.2 Location and Background

The Sardine project area is located along the western edge of the Detroit Ranger District, Willamette National Forest near the town of Detroit, Oregon (see Figure 1-1). The 4,284 acre project area is in the northwest portion of the Detroit Reservoir/Kinney Creek subwatershed which is part of the larger Detroit Tributaries/Blowout Divide watershed. The project area is located in T9s, R5e, sections 19, 29, 30 and 31; and T10s, R5e, sections 5, 6, 7, 8, 17, 18, 20 of the Willamette Meridian, Marion County, Oregon.

Two powerline corridors run through this project: a Bonneville Power Administration line and a Portland General Electric line.

Major stand replacement fires swept through the project area around 1919 and again around 1951. Past timber harvesting in the area included salvage logging after the fires and clearcutting. Today, the project area is dominated by large areas of second growth forest. The 40 to 90-year
old stands proposed for commercial thinning are a combination of previously clearcut harvest units and fire regenerated areas.
1.3 Purpose and Need

There is a need for this project to:

**Help contribute timber products in an economically viable manner to meet Willamette National Forest long-term sustainable harvest levels.**

This project is located mostly in general forest and scenic land management allocations which are overlaid by matrix and riparian reserves. Direction to manage these land allocations comes from the Willamette National Forest Land and Resource Management Plan (LRMP), as amended. There is a need to manage the project area to provide multiple-use benefits which includes an expected output of timber products. Timber would be provided at the optimum level to meet the long term sustained-yield capacity based on the growth potential of the land which is compatible with multiple use objectives and meets environmental requirements for soil, water, air, and wildlife habitat quality (LRMP IV-227).

The Northwest Forest Plan Final Supplemental Environmental Impact Statement (USDA Forest Service and USDI Bureau of Land Management, 1994), which led to the Record of Decision and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Related Species Within the Range of the Northern Spotted Owl (USDA Forest Service and USDI Bureau of Land Management, 1994) amended the Willamette Forest Plan. It recognizes “the need for forest products from forest ecosystems is the need for a sustainable supply of timber and other forest products that will help maintain the stability of local and regional economies on a predictable and long-term basis” (pages 1-4).

There is also a need for this timber sale to be economically viable and competitive in the current poor timber market. While timber sales from this project are not planned for a couple years and future market conditions are difficult to predict, it is likely that relatively small diameter timber sales that rely too heavily on helicopter logging will continue to be a difficult sell. There is a need for this project to consider economic realities and be designed in a manner that provides the best opportunity for the sale to sell in an uncertain timber market.

**Use silvicultural methods to reduce current stocking levels to maintain or improve tree growth for vigorous growing and healthy stands, promote structural and species diversity, and accelerate large tree diameter development in riparian reserves.**

The 40-90 year old previously harvested and fire regenerated stands proposed for treatment (both in riparian reserves and upland areas) currently have a dense overstory and limited understory species abundance. The trees are competing for sunlight, nutrients, and water, causing suppression mortality. Most stands have uniform stocking, lack natural canopy gaps, and are dominated by a single tree species. Thinning and gaps would (1) increase the amount of light and nutrients reaching the remaining trees and increase their growth rates and (2) increase the amount of light and nutrient that reach the forest floor allowing understory development.

**Improve big game forage in the area.**

Big game forage indices in the project area are below standards and guidelines. There is a need to provide more early seral habitat in this project area.
Reduce power outage risk due to tree contacts on powerlines.

Two powerline corridors run through this project area: a Bonneville Power Administration line in the southern portion of the project area and a Portland General Electric line in the north. There is a need to manage the vegetation along these corridors as in some areas there is a considerable risk of trees toppling into the powerline towers and lines.

1.4 Proposed Action

The Detroit Ranger District proposes commercial thinning, gap creation, and meadow enhancement to meet the purpose and need of contributing timber products, enhancing tree growth as well as structural and species diversity, improving big game forage, and reducing power outage risks adjacent to powerlines. The following activities are associated with this project:

- Commercial thinning 865 acres of 40 to 90 years-old stands, generating about 12.3 million board feet of timber.
- Creating gaps, ranging from ½ to 3 acres in size, on up to 5% of the total harvest unit acreage. Placing two of the gaps adjacent to the powerline corridor in root rot pocket areas with dead and dying trees.
- Reestablishing and improving 18 acres of ridge top meadow by cutting encroaching trees and piling and burning generated slash.
- Precommercial thinning 53 acres of young plantations.
- Treating activity-created fuels by underburning, grapple pile and burning, and burning landings.
- Constructing about 2.1 miles of temporary spur roads to access thinning units. The spur roads would be decommissioned after harvest activities by ripping, water-barring, re-establishing drainage and seeding.
- Reconstructing and maintaining about 23.4 miles of existing system roads including brushing, reconditioning roadways and ditches, replacing culverts, and repairing cut slopes as necessary.

Harvest systems for this project would include roughly 40% helicopter, 55% skyline and 5% ground-based logging.

1.5 Decision to be Made

The Responsible Official for this proposal is the District Ranger of the Detroit Ranger District on the Willamette National Forest. After completion of the Environmental Assessment (EA), there will be a 30-day public comment period. Based on the response to this EA and the analysis disclosed in the EA, the Responsible Official will make a decision and document it in a Decision Notice that will accompany the final EA. The Responsible Official can decide to select the proposed action, an action alternative that has been considered in detail, modify an action
alternative, or select the no action alternative. The Responsible Official may also identify which, if any, mitigating measures apply.

The decision regarding which combination of actions to implement will be determined by comparing how each factor of the project’s purpose and need is met by each alternative and the manner in which each alternative responds to the significant issues raised and public comments received during the analysis. The alternative that provides the best mix of prospective results in regards to the purpose and need, the issues, and public comments will be selected for implementation.

### 1.6 Tiering and Incorporating by Reference

This EA incorporates by reference the Detroit Tributaries Watershed Analysis (USDA, 1997); the Willamette National Forest Road Analysis Report (USDA, 2003); Willamette National Forest Land and Resource Management Plan and Record of Decision (USDA, 1990), as amended by the Northwest Forest Plan (USDA & USDI, 1994).

The Watershed Analysis provides the responsible official with comprehensive information to aid in land management decisions. The analysis provides descriptions of the reference, historic and existing conditions of the important physical, biological, and social components of the watershed. The study analyzes activities and processes and recommends management activities based upon landscape and ecological objectives.

The Willamette National Forest Road Analysis Report (USDA, 2003) provides recommendations for key roads to be maintained open for traffic and for non-key roads to be considered for closure. The analysis provides information needed to manage a road system that is safe and responsive to public desires, affordable and efficient, has minimal adverse effects on ecological functions and is balanced with available funding.

This EA is tiered to the Willamette National Forest Land and Resource Management Plan (Forest Plan) Final Environmental Impact Statement and Record of Decision (ROD) dated July 31, 1990. The EA is also tiered to all subsequent NEPA analysis for amendments, including the April 1994, Northwest Forest Plan (USDA and USDI 1994). Table 1-1 shows all management allocations within the planning area. Only General Forest (14a), Special Use Permit Areas (13a), 100 acre Late Successional Reserve (LSR) (16b), and the Scenic Allocations (11a,c,d) fall inside the boundaries of proposed treatment areas. Figure 1-2 shows management allocations within unit boundaries.

<table>
<thead>
<tr>
<th>Willamette Forest Plan Management Allocations</th>
<th>Acres in Project Area</th>
<th>Acres of Harvest Proposed Within Management Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>14a – General Forest – Intensive Timber Management</td>
<td>1,673</td>
<td>190</td>
</tr>
<tr>
<td>11 (a, c, d) – Scenic Allocations</td>
<td>1,916</td>
<td>634</td>
</tr>
<tr>
<td>13a – Special Use Permit Areas</td>
<td>150</td>
<td>41</td>
</tr>
</tbody>
</table>
### Willamette Forest Plan Management Allocations

<table>
<thead>
<tr>
<th>Description</th>
<th>Acres in Project Area</th>
<th>Acres of Harvest Proposed Within Management Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>16B – Late Successional Reserve (100-acre)</td>
<td>160</td>
<td>0</td>
</tr>
<tr>
<td>5A – Special Interest Areas</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>6B – Elkhorn Wild &amp; Scenic River (scenic)</td>
<td>108</td>
<td>0</td>
</tr>
<tr>
<td>7 – Old Growth Groves</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Non-Forest Service lands$^1$</td>
<td>255</td>
<td>0</td>
</tr>
<tr>
<td>15 – Riparian Reserves$^2$ (overlay existing allocations)</td>
<td>1,677</td>
<td>192</td>
</tr>
<tr>
<td><strong>Total Acres</strong></td>
<td><strong>4,279</strong></td>
<td><strong>865</strong></td>
</tr>
</tbody>
</table>

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1. This includes 10 acres of private land, 225 acres of state land, and about 20 acres of Corps of Engineer lands administered by the Forest Service.

2. Riparian reserves overlay other Forest Plan management allocations; the acres presented here are not included in the total acres.
Figure 1-2 Management Allocations of Sardine Project Area
General Forest – Intensive Timber Management (14a)
Timber Harvest Units: 1, 2, 3, 4, 5, 6, 7 and two precommercial thinning units

The primary goal of this management allocation is to produce an optimum and sustainable yield of timber based on the growth potential of the land that is compatible with multiple use objectives and meets environmental requirements for soil, water and wildlife habitat quality. In addition, this allocation can provide many opportunities for public use and enjoyment. Northwest Forest Plan Matrix objectives include production of timber and other commodities, functions as connectivity between LSRs, and provides habitat for a variety of organisms associated with both late-successional and younger forest. Direction for silvicultural treatments is outlined in the Forest Wide Standards and Guidelines for Timber Management (FW-176 to FW 195).

Scenic – Partial Retention Middleground (11c)
Timber Harvest Units: 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 30, 33, 34, 35, 37, 38, 39, three precommercial thinning units, and the meadow enhancement area

Scenic Partial Retention Middle Ground areas to be treated in the Sardine project consist of portions of units between Hall Ridge and Highway 22. Forest management activities will be noticeable in the middle and background zones as viewed from major travel routes and recreation sites. Resource treatments will be conducted in such a way as they are visually subordinate to the characteristic landscape. Alterations will remain subordinate by repeating the form, line, color and texture elements which are characteristic of the landscape. Visual contrast will be minimized through shape, edge effect, scale and distribution of resource treatments. Management Area Standards and Guidelines are provided on pages IV 205-206 of the Land and Resource Management Plan (LRMP).

Scenic –Retention Foreground (11f)
Timber Harvest Units: 13, 14, 22, 31, 36, 40, 41, 42, 43

Scenic Retention Foreground areas to be treated in the Sardine project consist of portions of units adjacent to Highway 22. Forest Management activities will be conducted in such a way that they are completely subordinate to the character of the natural landscape and are not evident to the casual observer. Unusual landscape features with distinctive variety in form, line color and texture will be retained and perpetuated. These elements include: large trees, distinctive bark, spring and fall color, shrubs and ground cover, and a variety of tree species having age class diversity. Management Area Standards and Guidelines are provided on pages IV 213-215 of LRMP.

Special Use Permit Areas (13A)
Timber Harvest Units: 1, 12, 14, 16, 22, 30, 32, 33, 34, 36, 37, 39, 41

Special Use Permit Areas to be treated in the Sardine project are limited to powerline corridor areas. Most of this land is within powerline right of way. Vegetation removal shall be limited to supporting functional requirements of the special use, protection of area values, healthy and safety, and the preparation of the site for rehabilitation or future development. Management Area Standards and Guidelines are provided on pages IV 222-223 of LRMP.
Riparian Reserves (15)

Timber Harvest Units: All units except 20, 42, and 43 have riparian reserves (see Figure 1-3).

Riparian reserves are one of the components of the Aquatic Conservation Strategy outlined in the Northwest Forest Plan ROD (USDA Forest Service, 1994). Riparian reserves “provide [areas] along all streams, wetlands, ponds, lakes, and unstable and potentially unstable areas where riparian-dependent resources receive primary emphasis” (Northwest Forest Plan, p. A-5). They also serve to “improve travel and dispersal corridors for many terrestrial animals and plants, provide greater connectivity within the watershed,” and serve as connectivity corridors among Late-Successional Reserves (USDA and USDI. 1994, A-5 and B-13).

Riparian reserve widths are based on some multiple of a site-potential tree, or a prescribed slope distance, whichever is greater. In Sardine, riparian reserves are 172 feet wide on all non-fishbearing streams and 344 feet on fish bearing streams. Reserve widths may be adjusted based on a watershed analysis to meet Aquatic Conservation Strategy Objectives (ACSO) from the Northwest Forest Plan. The ACSOs were developed to restore and maintain the ecological health of watersheds and aquatic ecosystems on public lands by maintaining and restoring ecosystem health at watershed and landscape scales. Appendix B addresses ACSO consistency. Management activities may occur within riparian reserves in this project only if they maintain and restore the riparian dependent species and their requirements. All streams would include a no-harvest stream protection buffer. These buffers vary depending on stream class. For perennial and fish bearing streams (Class 2, 3), maintain a minimum 100’ wide buffer. For intermittent and ephemeral streams (Class 4), maintain a minimum 50’ wide buffer.

Maintenance and reconstruction of existing timber haul roads could occur in this management allocation. The existing transportation system travels through these areas and their reserves.

Late Successional Reserve (100 acre) (16b)

The Proposed Action includes a proposal to build a temporary road through LSR #3324. This is a 100 acre LSR that, based on a daytime owl sighting, was set aside as a LSR in the 1990s. No owls have been known to nest within this LSR. In the late 1990s, about 30% of this LSR was clearcut as part of the Horse Byars Timber Sale. Surveys conducted in 2009 also did not detect the presence, nesting or otherwise, of spotted owls in this LSR.

Based largely on economics and logistics, the Proposed Action includes the construction of a temporary road, about 1800’ of which is within the LSR boundaries. The road would require about 15’-20’ of clearing. About 900’ of this temporary road construction is in the Horse Byars clearcut and would not require the cutting of any old growth trees. Depending on final road alignment, the remaining 900’ of temporary road construction would involve the cutting of up to 25-30 mature trees. The trees would be cut and left in the LSR as down woody debris.
Figure 1-3 Riparian Reserves in Harvest Units and Full Riparian Reserves
Special Management Areas and Other Ownership
The project area contains acres of Inventoried Roadless Area (IRA) and Critical Habitat Units (CHU). Just north of the project area is the Opal Creek Wilderness, the Western Oregon Cascades North Critical Habitat Unit (CHU), and the Elkhorn Inventoried Roadless Area (IRA). These special management areas all fall north of proposed treatment areas. All activities meet forest plan standards and guidelines for each of these areas. Figure 1-4 shows these areas in relation to potential harvest units and the project area boundary.
Other Ownership

The project area includes private land, portions of Corps of Engineer and State Forest managed land. The 225 acres of Santiam State Forest in the southeast corner of the project area is the largest block of non-Forest Service land. The Corps of Engineers land in close proximity to Highway 22 is in the southern portion of the project area. No future management activities are planned on the private or State Forest land that lies within the project area.

1.7 Public Involvement

The scoping letter for the Sardine Project was mailed to tribal contacts including Klamath Tribe, Confederated Tribes of the Grand Ronde, Confederated Tribes of the Siletz Indians and, Confederated tribes of the Warm Springs on September 30, 2008. No comments were received from the tribes. The scoping letter for Sardine was mailed to all other interested parties on October 1, 2008. Comments were received from the following organizations, American Forest Resource Council, Rocky Mountain Elk Foundation, Oregon Wild, and Cascadia Wildlands Project. Also, one individual submitted a comment. All correspondence and full text of letters received are available in the analysis file for the Sardine project at the Detroit Ranger District office.

The proposal has been listed in the Schedule of Proposed Actions (SOPA) or “Forest Focus” since October 1, 2008. The Willamette National Forest publishes the SOPA quarterly on the web and sends the document to over 100 individuals, groups and industry representatives.

A field trip with Steve Pool of the Rocky Mountain Elk Foundation; Joe Ricker, Rick Breckel and Jeff Ritter of the Oregon Hunter’s Association; Jake Groves of the American Forest Resources Council; and Doug Heiken of Oregon Wild, and several District employees was held on October 16th, 2008. The tour included stops in unit 14 along the highway, the proposed location of the temporary road near Halls Ridge and a stand along the ridge. This field trip was repeated with Josh Laughlin and Daniel Kruse of Cascadia Wildlands on October 23, 2008. Using the comments from the public and other agencies, the interdisciplinary team developed a list of issues to be addressed in this assessment.

1.8 Issues

The Forest Service separated the issues into two groups: significant and non-significant issues. Significant issues describe a dispute or present an unresolved conflict associated with potential environmental effects of the proposed action. Significant issues are used to formulate alternatives, prescribe mitigation measures and focus the analysis of environmental effects. Significant issues are tracked through issue identification (Chapter 1), alternative development and description (Chapter 2), and environmental consequences (Chapter 3). Non-significant issues were identified as those outside the scope of the proposed action; already decided by law, regulation, Forest Plan, or other higher level document; irrelevant to the decision to be made; or conjectural and not supported by scientific or factual evidence.
Significant Issue: Road construction through a 100-acre LSR

Measure of change: Feet temporary road in the LSR

During scoping, some comments said that LSR 3324 is already fragmented and additional road building in this area may decrease the functionality of the habitat. Roads may be vectors for weed introduction and soil disturbance. They may also lead to increased recreation use as access improves.

Response: Alternative 3 addresses the issue of road construction in LSR 3324. This alternative does not build the road through LSR 3324 and considers those acres once accessed by the road for helicopter logging.

Significant Issue: Large Gaps

Measures of change: Acres large gaps

Some concerns were raised about the proposal to include gaps larger than ½ acre. These comments urged the District to keep gaps at ½ acre and smaller.

Response: Alternative 3 does not include larger gaps for forage creation, but does retain two 2-acre gaps for the treatment of root rot pockets near the powerline.

Non-significant Issue: Downed woody debris and snags may be lacking in the project area

There was concern that the project could affect snag recruitment and downed woody debris. Some comments dealt with concerns over thinning in riparian reserves.

Response: As described in the Wildlife section in Chapter 3, the project area is currently below desired standards for DWD and snags. This condition is a result of past fires and past management activities. The proposed project should grow large trees quicker in the project area and, therefore, should in the future provide higher quality snags and downed wood.

Non-Significant Issue: Sales may not maximize economic efficiency

High costs of planning and implementation of a timber sale project may affect the overall economic efficiency of the project. Costs associated with timber sales include: planning, type and cost of yarding systems, seasonal restrictions, road improvements and brush disposal costs. Project design decisions can influence the net revenue generated by subsequent timber sales. High cost sales may also result in a lack of bids for the timber or a sale where the purchaser is unable to meet contract obligations. These outcomes could result in less timber harvest than the project planned.

Response: This issue is already decided by Forest Service Manual direction. Forest Service Manuals 2430-2432 and Handbook 2409.18 chapters 10-30 requires that financial and economic efficiency information be made available to the decision maker prior to substantial investment of capital resources into timber sale projects. All action alternatives will have a positive economic benefit and will be economically viable. Each action alternative presents the decision maker with a different set of associated costs and benefits. An economic analysis, included in Chapter 3 evaluates the viability of each action alternative.
Non-Significant Issue: Amount of big game forage
Respondents were interested in providing big game forage by creating larger gaps and seeding them with forage species. Respondents suggested the area lacked early seral habitat and were interested in creating openings to encourage early seral species and forage growth. Ripping and seeding temporary roads in the project area could create “linear meadow features.”

Response: All action alternatives are creating some additional forage and openings through both thinning activities and gap creation. Action alternatives have been designed to balance the purpose and need of creating additional big game forage with other resource interests in the project area.

The big game section in Chapter 3 includes a discussion of forage conditions for each alternative.

Non-Significant Issue: Roads may cause deleterious effects to resource values
Respondents wanted the project to consider an alternative that builds no new roads and decommissioned roads where possible. Roads were mentioned as a potential source for weeds, channelizing water and causing erosion.

Response: No new system roads will be constructed and there are no system roads planned for decommissioning with any alternatives. The no action alternative allows the decision maker to consider no new road construction. Road construction standards are outlined in the Willamette National Forest LRMP, FW094-102. Maintenance and reconstruction would be performed on existing roads to allow timber haul while adhering to best management practices for water quality. This project would improve current conditions on 23.4 miles of road needed for rock and timber haul. All action alternatives include maintenance on roads to align them with required standards for timber haul. Road conditions are analyzed in Chapter 3.

Non-Significant Issue: Degradation of water quality and quantity
Comments expressed concern about the effects to downstream drinking water supplies because of thinning in riparian reserves.

Response: Riparian buffers limit where and how much harvesting may be done near streams. This issue is not considered significant because riparian buffer standards, including no harvest buffers, are prescribed as part of the project design criteria. Actual dimension and specific requirements of each buffer would be determined on a case by case basis for stream segments in each harvest unit. The prescriptions include a no-harvest zone adjacent to the streams, which varies in width depending on the class of the stream. Design criteria and mitigation measures address this issue in Chapter 2. The effects of the proposed action and the other alternatives on riparian management are discussed in Chapter 3, section 3.7. The option for no commercial harvest in riparian reserves is available to the responsible official in the no action alternative.

Non-Significant Issue: Forest visitors may see or hear evidence of the project from nearby recreation sites
Nearby recreation trails such as Dog Rock, Cedar Lake and Phantom Bridge may be close enough that a forest user could see and/or hear project activities.

Response: Visual and audio impacts to these resources are disclosed in the Recreation Section in Chapter 3.
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Appendix B – Project Consistency with Aquatic Conservation Strategy Objectives

Appendix C – Post-Sale Activities
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