

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE

ENVIRONMENTAL ASSESSMENT NO. OR090-02-01
Oak Restoration Demonstration Project

I. INTRODUCTION

A. BACKGROUND

Forests and woodlands in the Willamette Valley foothills south of Eugene were historically dominated by Oregon white oak (*Quercus garryana*), California black oak (*Quercus kelloggii*), Douglas-fir (*Pseudotsuga menziesii*), and ponderosa pine (*Pinus ponderosa*), especially on dry, warm sites. Human action, such as fire suppression, urban and agricultural conversion, and past timber management activities, has contributed to the decline of oak woodlands and open Douglas-fir and ponderosa pine stands. In turn, the disappearance of these habitats has contributed to declines in native flora and fauna (Chiller et al. 2000, pp. 29-34, 41-45).

This action proposes a restoration demonstration project in an approximately 7-acre project area located in Section 23, Township 19 South, Range 4 West, Willamette Meridian, Lane County, Oregon, in the South Valley Resource Area of the Eugene District of the Bureau of Land Management (BLM). The project area includes a 4-acre, 14-year-old stand of planted Douglas-fir and ponderosa pine, and a 3-acre, 35-year-old stand of Douglas-fir with low, uneven stocking levels. Both stands include numerous clumps of Oregon white oak and California black oak.

The proposed restoration demonstration project is funded as part of a grant from the National Fish & Wildlife Foundation for "Conservation of Oak and Pine Habitat in the Southern Willamette Valley, Oregon." This broader project involves the following non-federal partners: Institute for Applied Ecology, Friends of Buford Park, Oregon Herpetological Society, Integrated Resource Management Inc., Northwest Habitat Institute, and Salix Associates LLC. The work of these partners includes mapping and habitat assessment, species surveys, monitoring, developing and implementing restoration techniques, and growing plants for restoration projects.

This proposed restoration demonstration project is intended as the first phase of an eventual multi-phase effort, depending in part on the results of the first phase. Future phases are uncertain at this time, but might include weed control, planting and seeding, tree and shrub cutting, prescribed burning, as well as research, monitoring, and environmental education. Reasonably foreseeable future actions are addressed below in the analysis of cumulative effects.

B. PURPOSE OF AND NEED FOR THE ACTION

The purpose of the action is to restore oak and oak-conifer forests that were historically typical of the Willamette Valley foothill ecosystem; to maintain and enhance habitat for wayside aster (*Aster vialis*); and to provide a site to demonstrate to the public the implementation and results of such restoration techniques.

The need for the action is established in the Eugene District Record of Decision and Resource Management Plan (RMP), which directs that BLM maintain and enhance oak, oak-conifer woodlands, and pine stands for associated wildlife species (USDI Bureau of Land Management, June 1995, [RMP], p. 40). This need is further detailed in the Integrated Natural Fuels Management Strategy (INFMS), which identified that virtually all oak openings and meadows are gone from BLM-administered lands in the Eugene District and establishes as a goal the creation, restoration, and maintenance of structure and function in oak sites (USDA Forest Service and USDI Bureau of Land Management, November 2000 [INFMS], p. 15). An assessment of oak resources in the Eugene District found few oak forests or woodlands and noted that Douglas-fir is dominating stands that had been oak-conifer woodlands or savannas (Chiller et al. 2000, pp. 37-38).

The RMP also establishes the need for habitat management for Special Status Plant Species, such as wayside aster, which is a Bureau Sensitive species and a Survey and Manage, Category A species. The RMP explains,

“Actions needed to manage for special status plant species will generally be those management prescriptions designed to mimic or create historical conditions/processes that special status plant species evolved under and or were maintained by ...” (RMP, p. 53).

Furthermore, the RMP directs that conservation and management measures may include implementing

“... silvicultural treatments through adaptive management to maintain or enhance special status plant populations.” (RMP, p. 55).

The Survey and Manage Management Recommendations for wayside aster include the following:

“Create gaps and edge habitat through fine scale disturbances, open up forest canopy ... and control competing vegetation. Periodically reduce duff layers in and around individuals to allow for seedling germination and establishment. Control noxious and exotic weeds using integrated noxious weed management techniques ... Prescribed fire can be effective in reducing competing vegetation and may be an effective tool in maintaining Aster vialis habitat” (Wogen 1998, pp. 2, 11).

The project area is within the General Forest Management Area of the Matrix land use allocation. The Matrix land use allocation includes objectives to provide early-successional habitat and to provide habitat for a variety of organisms associated with both late-successional and younger forest (RMP, p. 34). The project area is within the Lower Coast Fork Willamette Watershed, for which a watershed analysis has not yet been prepared. The project area does not include any Riparian Reserves.

C. CONFORMANCE WITH LAND USE PLAN

The Proposed Action and alternatives are in conformance with the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl (USDA Forest Service and USDI Bureau of Land Management, April 1994 [NSO ROD]), and the RMP as amended by the Record of Decision 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, January 2001).

Additional site-specific information is available in the Oak Restoration Demonstration project analysis file. This file and the above referenced documents are available for review at the Eugene District Office.

II. ISSUES

The following issues have been selected for analysis:

ISSUE 1: How will restoration activities affect current and future habitat for wayside aster?

Wayside aster, a Bureau Sensitive species and Survey and Manage species, is present in the project area, and the proposed restoration treatments are designed to improve current and future habitat. The INFMS strategy noted that there is a high likelihood that wayside aster has lost habitat due to fire suppression and that habitat improvement is needed (INFMS, Appendix D, pp. 10-11).

ISSUE 2: How will restoration activities affect the spread of noxious weeds?

Noxious weeds, including Scot's broom and Himalayan blackberry, are present in the project area and could be affected by restoration treatments, especially those that involve soil disturbance.

ISSUE 3: How much fuel will be created by restoration activities, and how will prescribed burning affect air quality, soil, vegetation, and animals?

The INFMS strategy recommended that fire be used where it will reduce fuels and to restore species such as Oregon white oak (INFMS, p. 1).

ISSUE 4: How will restoration activities affect the ability of the site to contribute to a sustainable supply of timber?

In public scoping for this project, one commentor raised the question of whether the project would reduce the ability of BLM to manage and harvest timber within the Matrix land use allocation.

III. PROPOSED ACTION AND ALTERNATIVES

Table 1. Major Features of the Proposed Action and Alternatives

	Silviculture	Fuels	Botany
Alternative 1 Maintain Current Management Approach (No Action)	no action at this time; pre-commercial thinning likely soon in 14-year-old stand	no action	- protect wayside aster sites in pre-commercial thinning and future actions - remove noxious weeds along roadside
Alternative 2 Oak Restoration	<u>14-year-old stand:</u> cut all conifers and most hardwoods <u>35-year-old stand:</u> cut all Douglas-fir and grand fir; remove most cut trees	<u>14-year-old stand:</u> swamper burn <u>35-year-old stand:</u> remove most cut trees, then swamper burn	- cut trees within 40' of wayside aster sites - duff scrapes - monitoring plots - plant wayside aster - remove noxious weeds
Alternative 3 Mixed Oak/Conifer Restoration (Proposed Action)	<u>14-year-old stand:</u> cut all Douglas-fir and grand fir <u>35-year-old stand:</u> cut Douglas-fir and grand fir within 40' of oaks; do not remove cut trees	<u>14-year-old stand:</u> 2 acres of swamper burn; 2 acres of hand-pile and burn, then broadcast burn <u>35-year-old stand:</u> swamper burn	same as Alternative 2

A. ALTERNATIVE 1– MAINTAIN CURRENT MANAGEMENT APPROACH (NO ACTION ALTERNATIVE)

This alternative would take no action at this time, but would continue to manage the project area as Douglas-fir stands, while retaining existing oaks and ponderosa pine, consistent with RMP direction and current standard practice. Under this alternative, it is reasonably foreseeable that pre-commercial thinning would be applied in the 14-year-old stand in the near future. In the 35-year-old stand, no management actions would be likely in the near future, given the low stocking of the stand. However, an eventual regeneration harvest would be likely under the current management approach.

Silviculture

Current pre-commercial thinning provisions include:

- 14' x 14' spacing of Douglas-fir and ponderosa pine. Select ponderosa pine over Douglas-fir for retention, regardless of size.
- Within 20' of individual oak trees or a clump of oak trees, cut all conifers and all brush greater than 1/2 the height of the oak tree.
- Cut all competitive hardwoods other than oak, less than 6" diameter breast height (DBH) that are within 20' of a conifer leaf tree. Girdle competitive hardwoods 6-12" DBH in lieu of complete severance.

Fuels

Trees cut in pre-commercial thinning would be left in place. No burning would occur.

Botany

Conduct pre-commercial thinning during the dormant season of wayside aster (November through February).

Avoid ground disturbance near wayside aster plants.

Fall cut trees away from wayside aster plants.

Cut or girdle all trees within 20' of wayside aster plants.

B. ALTERNATIVE 2 - OAK RESTORATION

This alternative is designed to restore oak savanna structure (<50% tree cover) in the 14-year-old stand and oak woodland structure (50-75% tree cover) in the 35-year-old stand.

Silviculture

14-year-old stand: Cut all conifer trees. Cut most shrubs and hardwoods other than oaks.

35-year-old stand: Cut or girdle all Douglas-fir and grand fir. Girdle 4-6 large diameter Douglas-fir per acre for snags. Remove most of the cut trees using ground-based yarding equipment. Yard cut trees on pre-designated skid trail location(s) through the 35-year-old stand to the existing road to the north.

Fuels

Swamper burn most of the cut trees in the 14-year-old stand. In the 35-year-old stand, leave 4-6 large diameter Douglas-fir per acre as coarse woody debris, and swamper burn the rest. (Swamper burning is burning cut trees and limbs as they are piled on by hand, as opposed to constructing a pile and then burning the entire pile at once).

Botanist would designate some swamper pile locations and would also designate some locations to be avoided in order to evaluate effects of burning on wayside aster sites.

Botany

Remove most trees and tall shrubs within 40' of existing wayside aster locations: cut hardwoods and shrubs >6' tall and maintain no more than 5 tree stems >2" dbh. Botanist would mark tree stems for retention.

Remove vegetation and duff in plots (approximately 1 meter square) near existing wayside aster locations.

Place monitoring plots (approximately 1 meter square) at existing wayside aster locations for collection of data before and after vegetation treatment.

Plant and seed wayside aster and other native species.

Construct deer exclosures at known wayside aster sites if post-treatment monitoring identifies substantial deer browsing of aster plants.

Handgrub and remove all Scot's broom and Himalayan blackberry plants.

Non-vascular plant surveys would be completed before a decision on the proposed project, and the results would be disclosed in the Decision Record.

C. ALTERNATIVE 3 - MIXED OAK/CONIFER RESTORATION (PROPOSED ACTION)

This alternative is designed to restore mixed oak/pine/hardwoods woodland structure (50-75% tree cover) in the 14-year-old stand and mixed oak/Douglas-fir forest structure (>75% tree cover) in the 35-year-old stand.

Silviculture

14-year-old stand: Cut all Douglas-fir and grand fir and sufficient pine to achieve woodland density (50-75% tree cover).

35-year-old stand: Cut or girdle most or all Douglas-fir and grand fir within 40' of designated oaks >2" dbh. Do not remove cut trees from the project area. Girdle 4-6 large diameter Douglas-fir/acre for snags.

Fuels

Swamper burn most of the cut trees in approximately 2 acres of the 14-year-old stand, as in Alternative 2. In the remaining approximately 2 acres of the 14-year-old stand, handpile and burn cut trees, then broadcast burn the remaining fuels (broadcast burning is burning the shrubs, herbaceous plants, and dead fuels in place, without piling). Piles would be constructed on the old landing and/or spur road within the 14-year-old stand and to the north of the project area. Broadcast burning would not be conducted until the completion of pile burning and adjacent swamper burning (likely not until the year following the other treatments).

All other fuels provisions would be the same as in Alternative 2.

Botany

Botany provisions would be the same as in Alternative 2.

D. ALTERNATIVES CONSIDERED, BUT NOT ANALYZED IN DETAIL

1. No future management. It is not reasonably foreseeable that the project area would receive no future vegetation management, given the existing decisions in the RMP:

“Suitable stands aged 10 to 20 years will receive treatments designed to improve growth, value, and wood quality, when funding is available. These treatments include precommercial thinning, release, pruning, and fertilization.” (RMP, p. 200).

“For available forest lands, treatment areas will be selected when feasible from the least productive stands first. Stands that appear to have low stocking, damage, disease, generally low growth rates, or a predominance of noncommercial species resulting from past management will receive higher priority for harvest.” (RMP, p. 201).

Therefore, absent a restoration project such as the proposed action, it is reasonably foreseeable that the 14-year-old stand would be treated with pre-commercial thinning and that both the 14-year-old and 35-year-old stand would eventually be treated with a regeneration harvest.

2. Treatments in the northern parts of the 14-year-old and 35-year-old stands and in the late-successional stand adjacent to the project area. These areas were excluded from the project area, because they have few existing oaks and ponderosa pine, and no known wayside aster sites, which limits the suitability of these areas for this proposed restoration.

3. Use of herbicides for vegetation control. The RMP directs that herbicides be used only as a last resort for control of competing vegetation (RMP, p. 85). Whether herbicides would in fact be needed for vegetation control on this site may be addressed in future phases of this proposed restoration, but use of herbicides would be beyond the scope of this action, which is limited to the first phase of restoration.

IV. EXISTING CONDITIONS

A. GENERAL SETTING

The project area is located in the Willamette Province in the Lower Coast Fork Willamette Watershed. The BLM administers relatively little land in the watershed. Much of the watershed is in a non-forest condition (primarily agricultural and residential) or in young

Douglas-fir plantations. Existing forest stands are highly fragmented by roads, non-forest lands, and recently harvested areas. The Fox Hollow Research Natural Area (RNA), Camas Swale RNA, and the Lorane Ponderosa Pine Potential Area of Critical Environmental Concern are all in the general vicinity of the project area and contain vegetation characteristic of Willamette Valley foothills, dry-site Douglas-fir forest (Camas Swale RNA Management Plan and Environmental Assessment OR090-2-34; Fox Hollow RNA Management Plan and Environmental Assessment OR090-2-33; RMP, p. 71).

The plants and animals in this project area do not differ significantly from those discussed in Chapter 3 of the Eugene District Proposed Resource Management Plan/Environmental Impact Statement (RMP EIS) (USDI Bureau of Land Management, November 1994), except as noted below. The following resources are also discussed in greater detail in the project file.

B. SPECIFIC RESOURCE DESCRIPTIONS

1. Geology and Soils

The project area is located in the headwaters of Camas Swale Creek, at elevations ranging from about 800' to 900'. Slopes are west and northwest-facing; 1-10% in the western portion of the project area, and 10-30% in the eastern portion of the project area.

The geology of the general area is mapped within the Fisher Formation, which is continental in origin and consists of clastic, andesitic lapilli tuff, and breccias with basaltic and rhyolitic debris. The parent material in the project area is a dark red tuffaceous siltstone that contains no rock fragments. The siltstone was probably laid down as a hot ash flow, air fall, or stream-transported ash that was poorly welded and experienced a tremendous amount of oxidation, turning it red. Air and water moving through the massive beds of tuff would have removed many minerals including calcium, magnesium and phosphorus. With time, these beds have weathered into silt and clay. Many of the minerals that are left in the tuffaceous siltstone are virtually immobile, resulting in low soil fertility.

Soils mapped by the Natural Resource Conservation Service at this location include Bellpine and Jory (USDA, 1987). Vegetation found in the project is indicative of a xeric moisture regime. Soils are fine-textured (clay and heavy clay loam), non-skeletal (<35% rock fragments), shallow (<15 inches) with red to reddish brown soil. The soil exhibits Bellpine characteristics, but appears to be a variant of Bellpine, and is immediately distinguished from Bellpine by a shallow soil profile. This soil variant has not been identified by the Lane County Soil Survey (USDA, 1987). There are bare spots visible on the ground within the project area due to a lack of vegetation.

This may be the result of the most recent logging practices that the site experienced in combination with the xeric characteristics of the soil.

2. Vegetation

Historic General Land Office mapping indicates that in 1850, vegetation in the general area of the project area was “scattering [sic] or thinly-timbered Douglas-fir and white oak woodland, with brushy understory of hazel, oak sprouts, bracken and other shrubs.” It is likely that on the warmer slopes of the project area, more frequent burning would have favored more open savanna-prairie habitats rather than woodland habitats. This is evidenced in the paucity of large stumps, and by the remnants of herbaceous prairie species still scattered on the warmer slopes where reforestation with conifers has not been successful. On the cooler slopes of the project area, infrequent burning would have allowed more colonization by conifers.

The project area is currently composed of approximately 3 acres of 35-year-old, naturally regenerated conifers and approximately 4 acres of 14-year-old planted conifers.

The 35-year-old stand developed from natural regeneration following clear-cut harvest that occurred between 1963 and 1965. The portion of the stand within the project area has numerous gaps and is unevenly-stocked with Douglas-fir. Grand fir (*Abies grandis*), Oregon white oak, California black oak, Pacific madrone (*Arbutus menziesii*), and golden chinquapin (*Castanopsis chrysophylla*) occupy openings and edges. Clumps of oaks in this stand appear to have originated as sprouts after the 1963 harvest, suggesting that the oaks were present in the stand prior to harvest. Understory vegetation consists of poison-oak (*Rhus diversiloba*), hazel (*Corylus cornuta*), oceanspray (*Holodiscus discolor*), Pacific blackberry (*Rubus ursinus*), and whipplevine (*Whipplea modesta*). Salal (*Gaultheria shallon*) and swordfern (*Polystichum munitum*) are present under denser patches of trees. California fescue (*Festuca californica*) and bracken fern (*Pteridium aquilinum*) are present in canopy gaps. Several subpopulations of wayside aster exist in this stand, mostly at the edges of openings.

The 14-year-old stand was planted with Douglas-fir after clear-cut harvest that occurred between 1986 and 1988. The initial planting of Douglas-fir failed in some areas and was replanted. Ponderosa pine was planted in some areas that experienced initial planting failure. As a result of the initial planting failure and subsequent replanting, many of the conifers are younger than 14 years old. Oregon white oak, California black oak, Pacific madrone, and golden chinquapin are common, and most appear to have originated as stump sprouts. Understory vegetation consists of poison-oak, hazel, oceanspray, Pacific blackberry, whipplevine, creeping snowberry (*Symphoricarpos mollis*), California fescue, and bracken fern, along with scattered non-native grasses and weeds. Sensitive plant species wayside aster and bell-shaped

catchfly (*Silene campanulata* subspecies *glandulosa*) are found in open areas, primarily along the western edge of the project area. Bell-shaped catchfly is listed on the BLM Eugene District review list, which includes species that are not locally well-represented or understood, or are known to be at the edge of their geographical range in our area, but are not BLM Special Status plant species.

Vascular plant surveys for the project area were completed in summer of 2001. No sensitive plant species were found, other than wayside aster and bell-shaped catchfly, as noted above. Within the project area as a whole, the known sites of wayside aster include 47 clumps, totaling approximately 150 stems. Survey and Manage non-vascular plant surveys are not required in the 14-year-old stand, but are planned for the 35-year-old stand and surrounding forest where habitat may be present for organisms potentially affected by actions in the project area.

The noxious weeds Scot's broom (*Cytisus scoparius*) and Himalayan blackberry (*Rubus discolor*) are found in large, discreet patches, many originating from the spur road and landing left from the most recent logging. The spur road and landing were heavily overgrown with these weeds, but the blackberry was grubbed and the Scot's broom was pulled and cut along the roadside in summer 2001. The noxious weed St. John's wort (*Hypericum perforatum*) is also present in the project area. This species appears to be just starting to colonize the open areas.

Vegetation of areas adjacent to the project area is described in the Oak Restoration Demonstration project analysis file.

3. Fuels and Air Quality

Down dead fuels in the project area are very light overall with an occasional large log which considerably increases the otherwise low tons per acre of down dead fuel on this site. The existing dead fuels profile, broken down by the diameter of the fuel, is as follows:

0-3": **2.4** tons per acre (TPA) 3.1 - 9": **0.9** TPA > 9.1" **2.6** TPA.

The live fuels with the greatest impact on the potential fuel bed in the project area are bracken fern and grasses. These fuels tend to stay green until mid to late summer when they become dormant and add to the fine dead fuel loading. The largest component of the live fuels are the young Douglas-fir trees, most of which have limbs extending down to ground level in the 14-year-old stand.

The arrangement of fuels is scattered, very light dead fuels and somewhat patchy live fuels. Ladder fuels are heavy due to the young age of the stand, with tree limbs reaching the ground.

The project area is approximately 4 miles west of the Willamette Valley Designated Area identified in the Oregon State Implementation Plan for air quality. Inversions can occur at any time of the year but are most common in the summer and winter months. The nearest community is Creswell, approximately 5 miles east of the project area. Scattered private homes are located to the north and west, within a mile of the project area. The Willamette Valley is prone to air inversions of varying duration up to several weeks in length. Current air quality impacts to this area include smoke from wood stove use in the fall, winter and spring, and forest burning in the form of piles in the fall. Some field burning takes place in July and August but it limited to less than 5 days during these months. Miscellaneous sources of air quality impacts include vehicle traffic in the Creswell area and on Interstate 5 just east of Creswell.

4. Wildlife

No threatened or endangered species are known to be present in the project area. The project area does not provide suitable nesting habitat for northern spotted owls due to the young age of the stands proposed for treatment and the small amount of adjacent late-successional forest present. There are no spotted owl activity centers, Late Successional Reserves or designated Critical Habitat within 0.25 mile of the project area. The closest known nesting site is at Camas Swale Creek Nest Site in Section 25, approximately 1 mile south of the project area. No disturbance to this pair is anticipated under any of the alternatives due to the distance of the project area from the nest site. The project area is outside of the known nesting range of the marbled murrelet.

There are no known sites of Survey and Manage animals in the project area, and no pre-disturbance surveys for Survey and Manage animals are required for the proposed project. Although the project area is within the known range and vegetation community type associated with red tree voles, it is not considered suitable habitat due to the young age of the stands proposed for treatment.

Recent bird survey results are presented in the appendix. The bird species currently found are generally those typical of conifer forest, rather than oak woodland or savanna. Preliminary surveys for reptiles and amphibians found rubber boa and western skink in the project area.

V. ENVIRONMENTAL CONSEQUENCES

A. UNAFFECTED RESOURCES

The following resources are either not present or would not be affected by any of the alternatives: threatened or endangered species, fish, surface and groundwater quality,

Areas of Critical Environmental Concern, prime or unique farmlands, floodplains, Native American religious concerns, solid or hazardous wastes, Wild and Scenic Rivers, cultural resources, Wilderness, minority populations, and low income populations.

B. DIRECT, INDIRECT, AND CUMULATIVE EFFECTS

The Proposed Action and alternatives would have environmental effects. However, none of the alternatives would have effects beyond those described in the RMP EIS and the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl, February 1994 (NSO FSEIS) (USDA Forest Service and USDI Bureau of Land Management, February 1994). This analysis incorporates by reference the analysis of cumulative effects in the RMP EIS (Chapter 4) and the NSO FSEIS (Chapter 3 & 4, pp. 4-10). Those documents analyze most cumulative effects of silvicultural treatments, timber harvest, fuels treatments, and other related management activities. The following section supplements those analyses, providing site-specific information and analysis particular to the alternatives considered here.

Table 2. Summary of Effects of the Proposed Action and Alternatives

	Wayside Aster	Noxious Weeds	Fuels & Burning	Timber Supply
Alternative 1 Maintain Current Management Approach (No Action)	<ul style="list-style-type: none"> - no direct damage to known plants - openings around known sites would temporarily increase plant vigor - no increase in habitat 	<ul style="list-style-type: none"> - weeds would be controlled only along roadside - tree growth would eventually suppress weeds 	<ul style="list-style-type: none"> - moderate increase in fine fuels in 14-year-old stand; no change in 35-year-old stand total emissions: none 	<ul style="list-style-type: none"> - no likely timber harvest until regeneration harvest in ~50 years: 3,200 - 4,300 cu. ft./acre of timber
Alternative 2 Oak Restoration	<ul style="list-style-type: none"> - openings around known sites would increase plant vigor for longer than Alternative 1 - planting and seeding may increase population - creation of future habitat, with more open habitat than Alternative 3 	<ul style="list-style-type: none"> - open conditions would stimulate weed growth - skid trails might disperse weed seeds - pulling weeds would control spread 	<ul style="list-style-type: none"> - large increase in fine fuels before burning in both stands - small increase in large fuels in 35-year-old stand total emissions: 1.57 tons 	<ul style="list-style-type: none"> - harvest of 900 - 1,200 cu. ft./acre of timber now - no likely future timber harvest
Alternative 3 Mixed Oak/Conifer Restoration (Proposed Action)	<ul style="list-style-type: none"> Similar to Alternative 2, except not as much open habitat - broadcast burning might stimulate germination 	<ul style="list-style-type: none"> Similar to Alternative 2, except not as much open habitat and no skid trails 	<ul style="list-style-type: none"> - large increase in fine fuels before burning in both stands - large increase in large fuels in 35-year-old stand total emissions: 1.56 tons 	<ul style="list-style-type: none"> - no timber harvest now - no likely future timber harvest

1. ALTERNATIVE 1

Issue 1: Effects on wayside aster

When pre-commercial thinning occurs in the 14-year-old stand, standard management practices would include mitigation measures to protect the known wayside aster sites and cutting trees near known wayside aster sites. Given the mitigation measures, there would likely be little or no direct damage to known wayside aster plants under Alternative 1. The 20-foot openings around the known wayside aster sites would likely stimulate wayside aster plant vigor temporarily, but for a shorter period of time than in Alternatives 2 or 3. After this temporary period of increased vigor, the existing wayside aster population would be increasingly suppressed by conifers and weeds, because there would likely be no vegetation management after the pre-commercial thinning. The continued growth

of the stand would also preclude the development of new wayside aster habitat in the project area.

Issue 2: Noxious weeds

A contract is currently in place through 2003 to continue treating weeds along the roadsides and the old landing, as was done in summer 2001. However, the weed slash would not be burned, monitored, and retreated, as in Alternatives 2 and 3. Seed would be left to germinate after the contract is over, and again infest these areas.

Other than along the roadsides, no weed treatments would be likely to occur within the project area. Noxious weeds, especially Scot’s broom, Himalayan blackberry, and St. John’s wort, would continue to grow where not shaded. Weed establishment and growth would likely be successful in the openings around oaks and wayside aster plants. In similar situations at other known wayside aster sites, aster plants have been suppressed by weed growth, as would be likely here.

Issue 3: Fuels and burning

Pre-commercial thinning in the 14-year-old stand would increase fine fuels, but overall fuel levels would be typical of those created and left in place by pre-commercial thinning, and are generally considered an acceptable risk level. Fuel levels would be expected to remain at the current levels in the 35-year-old stand in the absence of any active management. The following table displays the anticipated dead fuel profile after vegetation treatment.

<i>total fuel in tons per acre, by diameter of fuel (change in tons per acre from current levels)</i>			
	0-3"	3.1-9"	>9.1"
14-year-old stand	5.0 (+2.6)	1.7 (+0.8)	2.6 (no change)
35-year-old stand	2.4 (no change)	0.9 (no change)	2.6 (no change)

Because Alternative 1 would not include burning, it would create no particulate matter emissions and therefore have no effect on air quality.

Issue 4: Sustainable supply of timber

The low stocking level in the 35-year-old stand precludes a commercial thinning opportunity. The pre-commercial thinning treatment in the 14-year-old stand would have considerable impact on projected timber yields. The standard pre-commercial thinning stipulation of cutting competing trees near oaks and the added stipulation of cutting competing trees near known wayside aster sites would greatly reduce conifer stocking on the site and preclude a future commercial thinning opportunity. The cumulative effect of this reduction in conifer stocking in the 14-year-old stand, low stocking in the 35-year-old stand, and the poor soil productivity, would result in marginal opportunities for timber management in the future. A regeneration harvest approximately 50 years from now would likely yield about 3,200-4,300 cubic feet/acre (19,000-25,000 board-feet/acre) of timber, which is about 30-40% of RMP projections for average regeneration harvest yields.

2. ALTERNATIVE 2**Issue 1: Effects on wayside aster**

The 40-foot openings around the known wayside aster sites would likely stimulate wayside aster plant vigor, height, and possibly seed-set by opening up dense canopies (Kaye 1995). However, the openings would also create risks of competitive vegetation overgrowth.

Alternative 2 would create more open habitat away from wayside aster sites than Alternative 3. This would create more future wayside aster habitat, but it is unknown if new germinants or transplants would be able to colonize the habitat.

Duff/litter scrapes and wayside aster seed sowing in 1-meter square plots with bare mineral soil exposed would result in some minimal ground disturbance, but could result in establishment of new plants and an increase in genetic diversity for the population. The new plants' genetic makeup would be similar to "parent plants" from which seed was taken, but seed could be moved from one edge of the project area to the other, and each new plant would represent a new genetic combination, and, possibly, a more vigorous member of the breeding group. Germination and survival of new plants would result in genetic mixing for the wayside aster population in the project area. Because in-breeding depression is suspected in most wayside aster populations, the small amount of genetic mixing produced by such crosses could produce beneficial cumulative effects on future generations, in the form of better seed-set, numbers of seeds produced, germination success, and plant vigor.

The direct effects of burning on wayside aster are not well known. However, wayside aster inhabits the Willamette Valley foothills, which were thought to have burned frequently in the past, so it is likely that the plant survives fire at some frequency and intensity. Fire effects have been studied for other *Aster* species, which were found to tolerate fire and resprout from thick rhizomes (Sullivan 1992; Reed 1993). Wayside aster is rhizomatous as well. Although BLM has no experience burning wayside aster sites, monitoring plots have documented plants being heavily browsed for years, with no net change in numbers of stems. Swamper burning of cut fuels in various locations away from, near to, and at sites of wayside aster would provide information on the effects of fire at various intensities. Direct burning of wayside aster sites would occur only at a portion of the known sites. Based on the natural history of wayside aster and the known tolerance of other rhizomatous *Aster* species to burning, there would likely be no cumulative negative effect on the viability of the species. Such treatments could provide important information about the fire tolerance of wayside aster, which would improve the design of prescriptive burns for future management.

Issue 2: Noxious weeds

Opening the tree canopy in the project area would improve growing conditions for Scot's broom, Himalayan blackberry, and St. John's wort. The existing weed plants have produced a seed bank which would eventually be transported from traffic (ground-based yarding equipment, foot traffic, or animal traffic) from the spur road, which is already heavily infested, or from the main road, which has a thick zone of roadside weeds. There would likely be repeated trips by ground-based yarding equipment from the main road through the 35-year-old stand. There would also be considerable foot traffic associated with the restoration actions, monitoring visits, and demonstration tours.

Alternative 2 would create more open habitat than Alternative 3, and more open conditions would provide more area of improved growing conditions for noxious weeds (and possibly wayside aster, as discussed above). However, hand-grubbing and removal of Scot's broom and Himalayan blackberry would minimize the spread of these weeds in the project area.

Temporary skid trails in the 35-year-old stand would result in some minor ground disturbance and could result in weed seed dispersal. However, monitoring and after-treatment weed removals would minimize any effect of skid trail use on the spread of noxious weeds.

Issue 3: Fuels and burning

Tree cutting would result in a large decrease in ladder fuels and a large increase in the dead fuels with a mostly continuous ground fuel bed and some open patches of light fuel. The following table displays the anticipated dead fuel profile after

vegetation treatment (including removal of cut trees in the 35-year-old stand), but before burning.

<i>total fuel in tons per acre, by diameter of fuel (change in tons per acre from current levels)</i>			
	0-3"	3.1-9"	>9.1"
14-year-old stand	9.4 (+7.0)	2.7 (+1.8)	2.6 (no change)
35-year-old stand	17.0 (+14.6)	6.6 (+5.7)	3.9 (+1.3)

Swamper burning would result in the elimination of most or all fuels <6" in diameter. This would be effective in eliminating fine fuels created by treatments.

There is little known about the specific effects of fire on xeric, shallow soils in western Oregon. However, the general effects of fire on soils are 1) decreases in soil organic matter, reducing soil protection; 2) volatilization of certain plant nutrients; 3) transformation of less volatile plant nutrients to soluble mineral form that are easily absorbed by plants or lost by leaching; and 4) heating of the soil, thus altering its physical, chemical, and biologic properties (Klock and Grier, 1979; Norris 1990). Impacts from the burning would be limited to the specific burn pile locations and may include high soil temperatures at the burn pile locations. Maintaining a low-intensity fire, such as would occur here, would minimize the loss of soil organic matter and thereby minimize fire effects to soils.

Swamper burning would have negligible effects on vegetation and wildlife habitat, except for the area under and immediately adjacent to piles. Some direct mortality to small mammals, reptiles and amphibians is possible, but such mortality would not be typical, and populations would recover from any mortality within 1 or 2 breeding seasons.

The proposed fuel treatments – approximately 7 acres of swamper burning – would result in total emissions of approximately 1.57 tons of particulate matter. In comparison, a similar-size regeneration harvest, in which slash is piled and burned, would produce more than twice as much total emissions – approximately 4.34 tons of particulate matter.

Issue 4: Sustainable supply of timber

Harvesting conifers from the 35-year-old stand at this time would yield about 900-1,200 cubic feet/acre (5,000-7,000 board-feet/acre) of timber, which is about 40-50% of RMP projections for average commercial thinning yields. Managing the site for oak woodland would forego future regeneration harvest yields. Managing the 14-year-old stand for oak savanna would preclude future conifer production, foregoing future commercial thinning or regeneration harvest yields.

3. ALTERNATIVE 3**Issue 1: Effects on wayside aster**

Most effects of Alternative 3 on wayside aster would be similar to Alternative 2, except that Alternative 3 would not create as much open habitat away from known wayside aster sites, as discussed above, and that Alternative 3 would include some broadcast burning in the 14-year-old stand.

Broadcast burning conducted after wayside aster plants are dormant would remove built-up dead plant material, top-kill tall weeds and shrubs that block light, create a mosaic of seed bed conditions, release some nutrients into the soil, and possibly stimulate germination of wayside aster seeds. One laboratory experiment found that heat treatment may enhance germination of wayside aster seeds, but results were variable and inconclusive (Guerrant 1991, p. 6). Overall, broadcast burning could create conditions for herbaceous plants more like those within the “historical range of conditions” for the Willamette Valley foothills and may provide better germination and growing conditions for wayside aster.

Issue 2: Noxious weeds

Most effects of Alternative 3 on noxious weeds would be similar to Alternative 2, except that Alternative 3 would not create as much open habitat, as discussed above, and therefore would result in slightly less improved conditions for weed growth. Also, Alternative 3 would not include any ground-based yarding equipment use in the 35-year-old stand and therefore would result in slightly less dispersal of weed seeds. However, because both Alternatives would monitor and remove weeds, the cumulative impact on the spread and growth of noxious weeds would likely be similar under Alternatives 2 and 3.

Issue 3: Fuels and burning

Tree cutting will result in a large decrease in ladder fuels and a large increase in the dead fuels with a mostly continuous ground fuel bed and some open patches of light fuel. The following table displays the anticipated dead fuel profile after vegetation treatment, but before burning.

<i>total fuel in tons per acre, by diameter of fuel</i> <i>(change in tons per acre from current levels)</i>			
	0-3"	3.1-9"	>9.1"
14-year-old stand	7.4 (+5.0)	2.7 (+1.8)	2.6 (no change)
35-year-old stand	17.0 (+14.6)	12.6 (+11.7)	28.2 (+25.6)

Swamper burning under Alternative 3 would similar to Alternative 2, but would be applied on slightly fewer acres.

Hand-piling and burning trees cut from the 14-year-old stand would have effects similar to swamper burning, targeting the same size classes of fuel. The only difference from swamper burning would be the building of piles before the burning takes place. Burning would take place on a single day and duration would be less than 2 hours. Some direct mortality may result to reptiles, amphibians, and small mammals that seek shelter within piles, and some mortality is more likely to occur than with swamper burning or broadcast burning.

Broadcast burning after removal of cut trees in the 14-year-old stand would come closest to approximating natural disturbance within the project area. Removing the cut trees before burning would greatly reduce fuel loading, resulting in lower fire intensity, lower risk, and fewer control problems. Expected fire behavior for the broadcast burn would be short flame lengths, low intensity, and low probability of ignition from spotting outside the burn area. It is uncertain whether Oregon white oak or California black oak saplings would be top-killed by a low-intensity surface fire, but both species exhibit considerable tolerance to low-intensity fire (Howard). Any oaks that are top-killed would be expected to resprout vigorously (Howard; INFMS, Appendix B, pp. 1-2). Although some mortality in the ponderosa pines is possible even with a relatively low intensity fire due to the small size of the trees, ponderosa pine saplings are generally able to withstand low-severity fires (Habeck, 1992; INFMS, Appendix B, pp. 1-2) and experience in burning ponderosa pine stands of this age east of the Cascades indicates a low mortality rate. Some direct mortality to small mammals, reptiles and amphibians might occur as individuals attempt to leave the area or are killed by the effects of heat and/or smoke to underground burrows, but such mortality would not be typical with a low intensity

fire, and populations would recover from any mortality within 1 or 2 breeding seasons.

The proposed fuel treatments – 5 acres of swamper burning and 2 acres of broadcast burning following hand pile burning – would result in total emissions of 1.56 tons of particulate matter. In comparison, a similar-size regeneration harvest, in which slash is piled and burned, would produce more than twice as much total emissions – approximately 4.34 tons of particulate matter. Because the broadcast burning would likely be conducted the year following the other treatments, the emissions would likely be divided as 1.42 tons produced in the late fall of 2002 during a 3-5 day period, and 0.14 tons produced in early fall 2003 during a 24-hour period.

Issue 4: Sustainable supply of timber

The low conifer stocking in the 35-year-old stand, combined with the cutting of competing Douglas-fir near oaks in both the 14-year-old and 35-year-old stands would preclude any commercial thinning opportunity. Managing the stands towards oak/Douglas-fir forest and oak/pine/hardwoods woodland would make any future conifer harvest incidental, and future regeneration harvest of conifers would be unlikely.

VI. CONSULTATION AND COORDINATION

A. LIST OF PREPARERS

The Proposed Action and alternatives were developed and analyzed by the following interdisciplinary team of BLM specialists:

Carla Alford	wildlife
Karin Baitis	soils
Richard Hardt	forest ecology
Pete O'Toole	forestry
Dave Reed	fuels
Mike Southard	cultural resources
Steve Steiner	hydrology
Chuck Vostal	fisheries
Molly Widmer	botany

B. COORDINATION

The proposed restoration demonstration project is funded as part of a grant from the National Fish & Wildlife Foundation for “Conservation of Oak and Pine Habitat in the Southern Willamette Valley, Oregon” and includes the following non-federal partners: Institute for Applied Ecology, Friends of Buford Park, Oregon Herpetological Society, Integrated Resource Management Inc., Northwest Habitat Institute, and Salix Associates LLC.

C. CONSULTATION

Consultation with the Fish and Wildlife Service or National Marine Fisheries Service is not required pursuant to the Endangered Species Act, because the proposed action and alternatives would have no effect on any listed species. The State Historic Preservation Office (SHPO) has been notified of this proposal and has determined, in accordance with 36 CFR 800.5(b), that the proposed undertaking would have no effect on cultural resources. The Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians were notified of this project during the scoping process, requesting information regarding tribal issues or concerns relative to the project. No response was received.

D. PUBLIC PARTICIPATION

On August 30, 2001, BLM sent a letter requesting comments on the scope of the proposed project to 10 groups or businesses, 7 state or local government agencies, and 16 individuals. BLM received 2 written responses. Giustina Land & Timber Co. expressed concerns about the effect of the proposed project on adjacent landowners and the suitability of the site for restoration. Roseburg Resources Co. questioned the effectiveness of the project given the small size of the proposed project site and stated opposition to the proposed project. The following are summarizations of the comments received and the BLM responses:

Comment: The project area is too small to be an effective demonstration project.

Response: A small project area was selected intentionally. This is the first such restoration project in the Eugene District and can provide important lessons regardless of its size. While the small project area does limit its value for research on the effectiveness of different restoration techniques, it will still allow for demonstration of the implementation of different techniques. Based on the results of this first

proposed project, BLM will evaluate whether a larger project would be appropriate in the future.

Comment: Managing landscapes by fire is no longer an acceptable practice in this region.

Response: Employing fire at the landscape scale (i.e., 100's or 1,000's of acres) in the Eugene District would be problematic, with considerable concerns about air quality, safety, property damage, and environmental impacts. However, this project only proposes employing fire at the site scale (i.e., <10 acres). Fire has been and continues to be commonly used for slash disposal and site preparation in forestry operations. The proposed use of fire in this project would not be fundamentally different than the use of fire in typical forestry operations, and would be over a smaller area, with less fuel, and lower emissions.

Comment: The project should not be reducing the ability to manage and harvest timber within the Matrix, and funds should be spent to manage conifer forests for future harvest.

Response: The RMP identified five objectives for the Matrix land use allocation:

“- produce a sustainable supply of timber and other forest commodities to provide jobs and to contribute to community stability;

- provide connectivity (along with other allocations such as Riparian Reserves) between Late-Successional Reserves;

- provide habitat for a variety of organisms associated with both late-successional and younger forests;

- provide important ecological functions, such as dispersal of organisms, carryover of some species from one stand to the next, and maintenance of ecologically valuable structural components, such as down logs, snags, and large trees;

- provide early-successional habitat.” (RMP, p.34).

Each acre of the Matrix is not expected to be managed to achieve simultaneously all five objectives, and the RMP does not establish primacy of any one of these objectives. This project does not focus on contributing to the objective of producing a sustainable supply of timber, but instead focuses more on providing habitat for a variety of organisms, providing important ecological functions, and providing early-successional habitat.

Comment: The project may cause adjacent landowners to experience inconvenience, distractions, trespasses, and vandalism, and the gate to the project area should be kept locked.

Response: BLM will generally provide access to public lands absent a compelling need to restrict access, such as public hazards or illegal activities. At this time, there is no evidence of such compelling need to restrict access.

A public notice advertising the availability of this EA and preliminary FONSI will appear in the Eugene Register-Guard on December 26, 2001. Copies of this EA and preliminary FONSI will be mailed to the same groups and individuals as was the scoping letter, in addition to any parties that request it.

VII. REFERENCES

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VIII. APPENDIX: Bird species by seral stage detected in Weiss Road #3, June 15 – July 4, 2001.

Species	Migration Nesting Guild		Feeding Guild			Flyover or "out" detection only
	Status			Early seral (14 yrs old)	Mid seral (~40 yrs old)	
American goldfinch	B	Shrub	Ground	x		
Bewick's wren	R	Shrub	Ground	x		
Black-headed grosbeak	A	Canopy	Canopy	x		
Black-throated gray warbler	A	Canopy	Canopy	x	x	
Chestnut-backed chickadee	R	SCN	Canopy		x	x
Chipping sparrow	A	Shrub	Ground	x		
Common raven	R	Canopy/cliff	Ground/scavenger			
Dark-eyed junco	B	Ground	Ground	x		
Hairy woodpecker	R	PCN	Bole	x		x
Hermit thrush	B	Ground	Ground		x	
Hermit warbler	A	Canopy	Canopy			x
Hutton's vireo	R	Canopy	Canopy		x	
MacGillivray's warbler	A	Shrub	Shrub	x		
Mountain quail	R	Ground	Ground			x (Brainerd)
Northern flicker	B	PCN	Bole			
Orange-crowned warbler	A	Shrub	Shrub	x		
Pacific-slope flycatcher	A	Canopy	Aerial			
Pileated woodpecker	R	PCN	Bole	x (in snag)		x
Purple finch	B	Canopy	Canopy		x	
Red crossbill	B	Canopy	Canopy			
Red-breasted nuthatch	R	SCN	Bole			x
Red-tailed hawk	B	Canopy	Ground/raptor	x (in snag)		
Ruffed grouse	R	Ground	Ground			
Song sparrow	B	Shrub	Ground	x		
Spotted towhee	B	Ground	Ground	x		
Steller's jay	R	Canopy	Canopy	x	x	x
Swainson's thrush	A	Shrub	Ground	x		x
Turkey vulture	B	Ground/cliff/cave	Ground/scavenger			
Western tanager	A	Canopy	Canopy			x
Willow flycatcher	A	Shrub	Shrub	x		
Wilson's warbler	A	Shrub	Shrub	x	x	
Winter wren	R	Natural cavity/crevice	Ground		x	x
Wrentit	R	Shrub	Shrub	x		

¹Migration status from Gauthreaux (1991):

A = long distance migrant; breeds in North America and spends nonbreeding period primarily south of the United States. B = short distance migrant, breeds and winters extensively in North America.

R = permanent resident; breeding and nonbreeding areas typically overlap.

²scn = secondary cavity nester

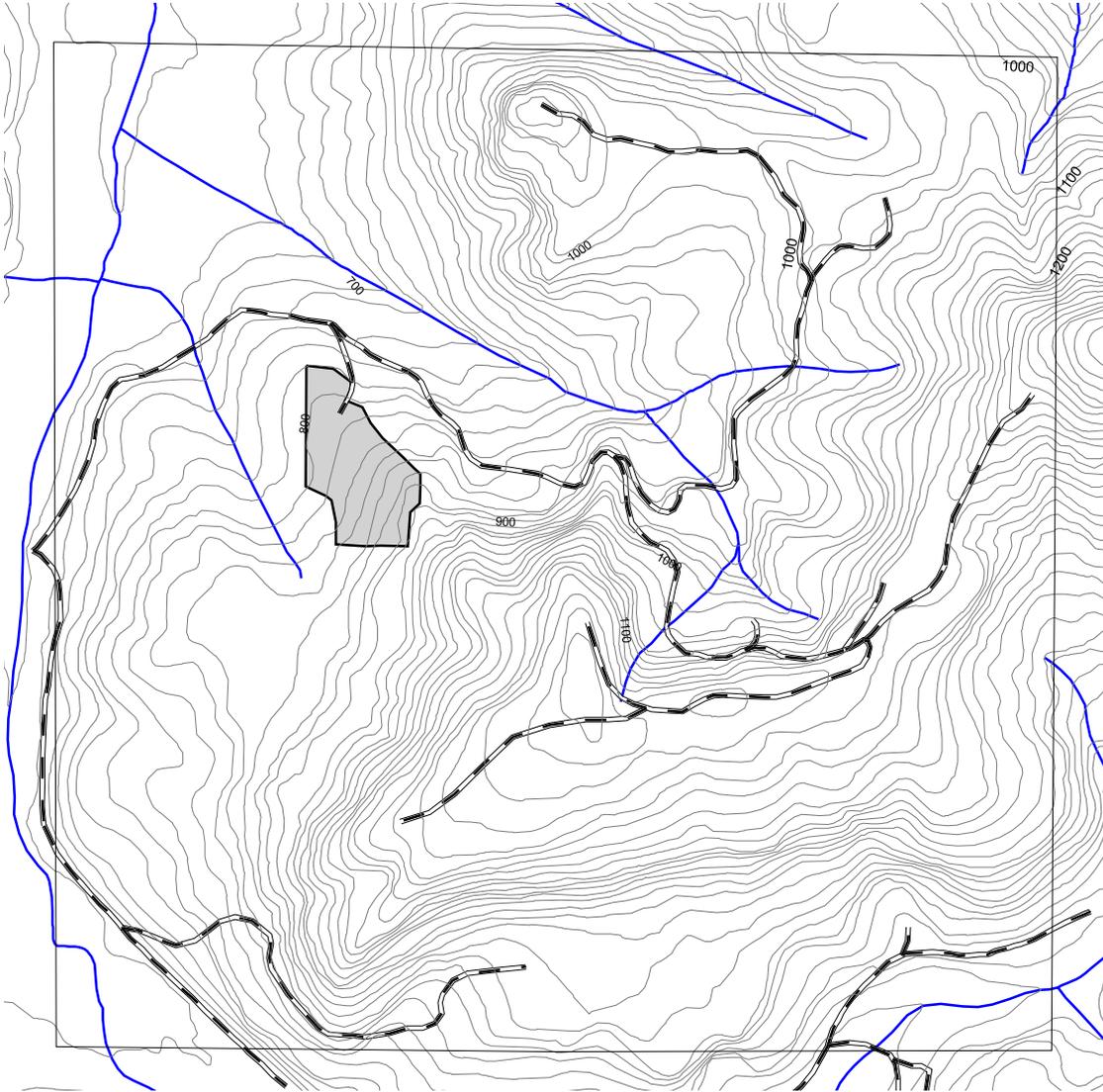
³pcn = primary cavity nester

⁴OUT = detected in adjacent habitat while surveying restoration stands

⁵FOA = flyover associated

T. 19 S, R 4 W, Section 23

Oak Restoration Demonstration Project



-  Section line
-  Contours_20ft
-  Roads
-  Project Area
-  creek



**UNITED STATES DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE**

Finding of No Significant Impact
for
Oak Restoration Demonstration Project

Determination:

On the basis of the information contained in the Environmental Assessment (OR-090-02-01), and all other information available to me, it is my determination that implementation of the proposed action or alternatives will not have significant environmental impacts not already addressed in the *Record of Decision (ROD) for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (April 1994) and the *Eugene District Record of Decision and Resource Management Plan* (June 1995), as amended by the *Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (January 2001), with which this EA is in conformance, and does not, in and of itself, constitute a major federal action having a significant effect on the human environment. Therefore, an environmental impact statement or a supplement to the existing environmental impact statement is not necessary and will not be prepared.

Date:
Field Manager, South Valley Resource Area

ENVIRONMENTAL ASSESSMENT NO. OR090-02-01
Oak Restoration Demonstration Project

Prepared by Richard Hardt
Forest Ecologist

December 2001

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE
SOUTH VALLEY RESOURCE AREA