

# **Crane Prairie Complex Environmental Assessment**

## **Bend/Fort Rock Ranger District**

### **Deschutes National Forest**

On August 12, 2001, a dry lightning storm started numerous fires on the west side of the Bend/Ft. Rock Ranger District, in the general vicinity of Round Mountain. The largest of these fires within the Crane Prairie Complex started in a beetle-killed lodgepole pine stand to the northwest of Round Mountain and quickly grew to several hundred acres in size. A combination of successful fire suppression actions and breaks in the vegetation canopy allowed the firefighters to contain the fire at just over 700 acres. During the early phase of this fire event, lookout personnel and structures on Round Mountain were threatened. The fire lookout had to be evacuated due to the fire proximity and the high potential of the fire burning upslope to the tower.

The acres burned are all within the Matrix allocation of the Northwest Forest Plan (NWFP, 1994) and the General Forest management area designated by the Deschutes National Forest Land and Resource Management Plan (LRMP, 1990). Tree species in this lightning-caused fire include ponderosa pine, lodgepole pine, white fir and the occasional Douglas fir. Mortality of trees within the fire varies from 100% to near zero in areas that were previously thinned or otherwise had low canopy densities.

This Environmental Assessment (EA) describes an analysis of salvage harvest and reforestation in the Crane Prairie Complex Fire.

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# Crane Prairie Complex Environmental Assessment

## Bend/Fort Rock Ranger District

### Deschutes National Forest

## I. PURPOSE AND NEED FOR ACTION

The fire is located 3.5 miles southeast of Crane Prairie Reservoir and approximately 12 miles northwest of La Pine, Oregon, within the range of the northern spotted owl ([Figure 1](#)), within the LRMP Management Area of General Forest. None of the proposed activities would occur within any inventoried roadless areas or riparian buffers. The proposal outlined here has been developed based on the purpose and need for the action. It has been shaped by the issues that the interdisciplinary team (ID team) considers to lie within the scope of the decision to be made.

A comparison of the existing vegetation conditions with the desired conditions of the general forest management area described in the LRMP and the matrix allocation of the NWFP, are summarized below. Both plans established a need to implement vegetation management on these land allocations in order to achieve or move towards management area goals and objectives.

Within Matrix allocation under the NWFP the primary reasons for vegetation management following a severe fire are to recover economic value and promptly restore desired vegetation to benefit species that are dependent upon connections between late and old stand conditions.

Within Management Area 8 (General Forest), the primary reason for vegetation management is to provide for timber production and utilization of the growing potential of the site consistent with resource protection Standards and Guidelines. The wildfire burned severely across nearly 50% of the area, resulting in virtually total mortality of trees. Survival was limited to the areas adjacent to the fire perimeter along with previously thinned stands. Roughly one-half of the fire area does not have any live trees ([Figure 2](#) and [Figure 3](#)). By definition, high tree mortality (approximately 350 acres) equates to virtually

100% mortality of all tree species through the burn area. Moderate mortality (275 acres) equates to virtually 100% mortality of all white fir, lodgepole pine and those ponderosa pine less than 12 inches diameter. Low mortality (87 acres) refers to stands that have less than 50% mortality in white fir and lodgepole pine and less than 25% mortality of ponderosa pine trees greater than 12 inches in diameter.

Predictions of future stand mortality by unit and species are listed in Appendix D, Silviculture Report.

**Fiber Salvage:** There is a need for vegetation management to recover economic value and promptly

restore desired vegetation to protect and enhance resource values. Production of timber and other commodities is an objective in Matrix (NWFP, B-1). An estimated 4.0 million board feet of commercial firm wood fiber surplus to the identified minimum necessary for wildlife population viability was killed. Much of this burned material is ponderosa pine and small diameter lodgepole pine that would lose most of its commercial value if not utilized within one to two years. The average diameter of the ponderosa pine, lodgepole pine and white fir (larger than 7 inches in diameter) is 12 inches.

**Fuels Management:** There is a need to reduce fuel loadings to meet desired levels and reduce adverse impacts from future wildfires, as well as to protect the Round Mountain Fire Lookout, and maintain a safe evacuation route from the lookout. The majority of the area currently has, or will soon have, a high fuel load caused by the fire. Post-fire biomass estimates range up to 60-80 tons per acre. Within 10 years, much of the fire killed trees would fall down resulting in a continuous horizontal fuel bed, exceeding the desirable fuel load average of 15 tons per acre (LRMP #M8-27). The large numbers of down trees, surrounded by newly emergent shrub regrowth, would complicate the fire suppression response to a reburn in 10 years or more. Large, continuous blocks of heavy fuel could jeopardize efforts to contain a future fire, and would continue to jeopardize the evacuation route from the Round Mountain fire lookout and maintain the high risk of loss of the lookout itself. This lookout is the primary fire lookout for the west side of the Bend-Ft. Rock Ranger District, and provides the most important fire suppression response to protect the Round-Brown Late-Successional Reserve (LSR). The NWFP says that risk management activities to protect LSRs from future stand-replacing events are appropriate, and that salvage harvest may help reduce this risk (NWFP C-12 and C-13).

**Wildlife Habitat:** There is a need to re-establish vegetation to provide a connective corridor for wildlife species traveling between Late Successional Reserves and to protect existing habitat for cavity dependent species and other species that use burned areas. Matrix forest functions as connectivity between LSRs and provides habitat for wildlife species associated with both late-successional and young forests (NWFP, B-1). Matrix Standards and Guidelines are intended to provide habitat for dispersal of animals between stands, and maintain such structural habitat components as snags, logs, and large trees (NWFP, B-2). Management following a stand-replacing event should focus on accelerating or not impeding the development of high-quality habitat for species associated with late-successional habitat (NWFP C-14). Fires provide habitat for big game, bats, and species that use fire killed trees. Historically, patches of severe mortality less than 5 acres often resulted from small under burn fires of 80 to 150 acres and were a common occurrence (Browns/Wickiup Watershed Analysis 1997). The largest of the Crane Prairie Complex fires was generally a moderate to high intensity crown fire with resulting high tree mortality. Currently, the dead trees provide limited habitat for interior forest species such as northern goshawk and American marten. Within 5-7 years the fires would favor habitat generalists such as bluebirds and red-tailed hawks.

**Reforestation:** There is a need to restore desired vegetation by planting conifer seedlings in currently unoccupied growing space. Excessive amounts of coarse woody material may interfere with stand development (NWFP, C-13). Natural regeneration is not reliable enough to restore ponderosa pine quickly to the ecosystem on sites where it is well adapted. The remaining live ponderosa pines in the most severely burned areas are confined mainly to the fire perimeter and previously thinned stands and

their grouped distribution is inadequate to ensure natural regeneration. Some live trees have western dwarf mistletoe infestations that can slow the growth and reduce survival of nearby planted and naturally regenerated trees. Other agents such as gophers and heavy shrub competition (ceanothus and manzanita) affect the survival and growth of natural and planted trees and such mortality may delay or prevent successful reforestation of ponderosa pine within portions of the fire.

**Soil productivity:** There is a need to increase soil productivity by retaining soil nutrients and organic matter on site, re-establishing vegetation and reducing existing soil compaction in select areas. Soils within the fire perimeter have varying amounts of compaction from previous activities, primarily from logging of past decades, specifically the 1950s through 1980s. The fire removed much of the organic litter from the soil surface, although needle cast from the dead over story has replaced a portion of this material. Burn intensity was moderate with most of the fine woody material and shrubs present consumed by the fire but the mineral soil not greatly altered. Slopes in the fire vary on average from one to 20% percent. Limited wind and surface water erosion of the ash layer has occurred in the months following the fires. Overall, soil productivity has been altered slightly as a result of these fires.

**Proposed Action:** The Proposed Action (Alternative 2) was designed to be consistent with the Deschutes LRMP as amended by the NWFP. The purpose of the Proposed Action is to recover commercial timber value by salvaging dead and dying trees, reforest burned areas, reduce fuel accumulations resulting from the fire and restore wildlife habitat and site productivity by re-establishing vegetation.

The Proposed Action would salvage 547 out of the 720 acres affected by the Crane Complex fire. Hand planting of tree seedlings would occur on 208 acres. Dead and dying trees would be retained throughout the fire area. A more complete description of the Proposed Action is in Section C of this document.

**Decision to be Made:** The purpose of this document is to display the effects of the Proposed Action and the various alternative methods of addressing the issues identified for the Crane Prairie Complex EA. It documents an environmental analysis of the alternatives including a No Action alternative. Based upon this information and public comments, the Bend/Fort Rock District Ranger will determine which alternative would be implemented in the project area and if so, where and under what conditions.

A site-specific environmental analysis was conducted by an interdisciplinary team (ID team). This analysis developed alternative designs for salvage, reforestation, fuels treatment, wildlife habitat and the accomplishment of other resource activities, based on issues identified during the scoping process. The analysis is supported by reports and background material from resource professionals included in the appendices and available at the Bend-Ft. Rock Ranger District office.

**GOTO**

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## **II. ALTERNATIVES CONSIDERED**

### **A. Scoping Process**

The scoping process identifies public, Forest Service and other agencies environmental issues regarding a proposal to implement an action. Public scoping is begun early in the planning process in order to integrate the issues with the project alternatives. Scoping was conducted from mid-September to October 1, 2001, with over 100 individuals and organizations receiving a scoping letter. Seven individuals and organizations responded to the scoping letter via letters, phone calls and e-mail. Based on scoping, the ID team developed three vegetation management alternatives ranging in size from 0 to 547 acres of salvage harvest.

### **B. Issues**

The scoping process identified a total of two major issues related to the Proposed Action. The issues, together with applicable laws, regulations and policies were used as alternative design criteria. A method to relate how each of the alternatives addresses each issue involves the use of "measures of responsiveness" (measures). Care must be used when interpreting measures. Measures were used to clarify and compare the differences between the alternatives and not as a strict quantitative measure of environmental effects. Measures need to be taken in context when interpreting effects.

**1. Wildlife Habitat Management:** Historically, small fires were a common occurrence on the landscape and provided important nesting and foraging habitat for cavity nesters, bats, and other species that use burned areas. Although tree mortality after the Crane Prairie Complex Fire was much higher than that which occurs naturally in dry mixed conifer forests, salvage of the entire severely burned portions of the fire area would not provide the opportunity to retain high quality nesting and foraging habitat. The fire burned a significant portion of a wildlife connective corridor between two Late Successional Reserves (LSRs). Although this corridor sustained severe mortality, dead standing and down trees provide some protection for various species such as American marten, raptors and woodpeckers to travel and forage through the fire killed area. Retention of snags and logs is necessary to maintain the corridor in the short-term; revegetation of the corridor must take place to maintain long-term connectivity between the LSRs. The issues are maintaining habitat throughout the fire area for species dependent on snags and down logs, and balancing short-term habitat needs with long-term maintenance of the connective corridor.

Measures: acres of high mortality retained (no salvage); acres of late/old multistory forest burned with no salvage; short-term connective corridor provided: yes, no or partial; long-term connective corridor provided: yes, no, or partial.

**2. Soil Productivity Maintenance/Restoration:** Management of forestland may affect the long-term productivity of the site. Forest managers are required to maintain soil productivity, with the primary goal of soil management to maintain or enhance long-term site productivity. The total amount of organic matter on any site is composed of above ground trees, shrubs, dead wood, organic material and below ground roots. The above ground component is the most easily managed and affected by fuels treatments, wildfire and fiber harvest. Needle cast from dead trees has replaced some of the lost litter on the soil surface in portions of the fire, although existing levels of litter and woody material on the ground are still below desired levels for soil productivity. Timber salvage and whole tree yarding would remove many of the limbs and tops that would otherwise be available to replace the duff and nutrients lost to the fire within these previously thinned areas. The issues are whether timber salvage would reduce available organic matter below desired levels and whether timber salvage as included in the proposed action would increase detrimental soil impacts, such as soil compaction and displacement, above Forest Plan and Regional Standards and Guidelines.

Measure: tons per acre of fine and large woody material remaining on site, acres of salvage.

### **C. Alternatives**

***Alternatives considered but not fully developed:*** A restoration-only alternative that retained dead standing material and established plantations was considered but not fully developed due to operational feasibility considerations. Past experience on the Bend/Ft. Rock

Ranger District has repeatedly shown that plantations can be successfully established under the shade of dead overstory trees. However, as the dead trees begin to fall and "jackstraw" on the ground (fuel loads of 60-80 tons/acre), concerns over fire hazards begin to mount (e.g. Jack in the Box and Paulina Fires). Within 10-15 years of tree mortality, fuels reaching the ground in the Crane Prairie Complex fire area would build to unacceptably high amounts in terms of reburn risk. This also would limit the operational feasibility of future stand tending opportunities, should they be desired, as removal of hazardous fuels would compromise the health and survival of the now-established understory. This alternative is not consistent with the Purpose and Need for Action; it does not address the need for vegetation management to reduce fuel levels, facilitate restoration of desired vegetation by removing coarse woody material that hampers natural regeneration, and manage vegetation to recover economic value.

**Alternative 1** is the No Action alternative. This alternative is responsive to the issues of wildlife habitat management and soil productivity during the short term. The issue of maintaining short-term wildlife habitat is addressed by maintaining the current condition of the fire area for species that utilize recently burned areas. The area closure that currently exists around the fire perimeter would remain in effect for the next 2 years or until rescinded. Restoration of long-term habitat would not be facilitated, as reforestation activities would not be accomplished. The issue of soil productivity is partially addressed by leaving all of the material on site, although it does not allow for amelioration of existing soil compaction. If the area does not burn in a future wildfire, the organic material would be incorporated over time into the soil, potentially providing for increased soil productivity.

**Alternative 2** is the Proposed Action that was mailed to the public (Appendix F, pages F1-F3). This alternative would salvage all of the high mortality areas (49% of the fire area or 547 acres), and at 3.2 MMBF, would produce more firm wood fiber than either of the other alternatives. Retaining dead and dying trees throughout the project area would maintain habitat for cavity nesters. Hand planting tree seedlings would occur on 208 acres to accelerate the development of hiding cover and restoration of the connective corridor, while establishing a new stand of desired tree species. To protect planted seedlings, 150 live mistletoe infected overstory trees within and surrounding pine plantations would be pruned, topped, or girdled to reduce the infection sources. Gopher trapping and baiting would occur if damage to seedlings exceeds threshold levels established in the Animal Damage Control EA (1994). Temporary roads and other compacted sites would be subsoiled to restore soil productivity and protect fire restoration efforts.

Fuels management is addressed by whole tree yarding dead ponderosa pine trees larger than 9 inches in diameter and lodgepole pine and white fir trees larger than 5 inches in diameter within the EA units proposed for salvage. Soil productivity maintenance and restoration and wildlife habitat management is addressed by leaving dead trees 10-15 inches in diameter and larger at 100% of the maximum population potential where they are available. In addition, all dead ponderosa pine less than 9 inches in diameter and lodgepole pine and white fir less than 5 inches in diameter would be left on site to maintain soil productivity.

Refer to the [Figure 4](#) for EA unit locations and other features of Alternative 2.

**Alternative 3** places an increased emphasis on wildlife habitat management, and soil productivity. To be more responsive to the issue of balancing short-term and long-term objectives for wildlife habitat, this alternative focuses on the retention of individual snags within the area proposed for salvage, along with mosaic (patchy) burns in areas excluded from salvage. Portions of a burned wildlife corridor that connects Browns Mountain and Round Mountain Late Successional Reserves would not be salvaged. Including the wildlife corridor, an estimated 62 additional acres of high mortality were excluded from salvage to provide high quality nesting and foraging habitat for cavity dependent species. To be more responsive to soil productivity maintenance and restoration, areas with tree mortality of less than 50% were generally excluded from salvage activities (outside of light underburn zones where the overstory ponderosa pine survived, while the understory lodgepole pine and white fir died).

Compared to the Proposed Action, Alternative 3 would salvage approximately 471 acres (2.84 MMBF) while maintaining cavity nester habitat by retaining dead and dying trees throughout the project area. Hand planting tree seedlings on 144 acres would occur in order to accelerate the development of hiding cover and facilitate the restoration of the connective corridor, while establishing a new stand of desired tree species. To protect planted seedlings, 100 live mistletoe infected ponderosa pine overstory trees within and surrounding pine plantations would be pruned to reduce the infection sources. Gopher trapping and baiting would occur if damage to seedlings exceeds threshold levels established in the Animal Damage Control EA (1994). Temporary roads and other compacted sites would be subsoiled to restore soil productivity and protect fire restoration efforts. An estimated 80% of the resulting salvage sale is composed of dead trees, with the remainder imminently susceptible to insect attack due to root, bole and crown damage as determined by the risk rating system in Appendix D.

Refer to [Figure 5](#) for EA unit locations and other features of Alternative 3.

The management activities common to Alternatives 2 and 3 are listed in the following section. Also listed are the standard mitigation

measures that are planned, wherever the applicable site-specific conditions are present, to minimize or eliminate resource impacts.

## **E. Mitigation Measures and Management Requirements for Action Alternatives**

Alternatives are designed to be consistent with the desired condition specified in the LRMP, as amended by the NWFP, and with its Standards and Guidelines. The following mitigation measures and management requirements highlight some of the specific applications to be applied to all the action alternatives whenever the applicable site-specific conditions are present. Most of the listed requirements are applied to reduce the potential adverse impacts that may result from implementing the management activities proposed under the alternatives, while some represent opportunities to manage resources in conjunction with the proposed vegetation management activities. Each mitigation measure (MM) or management requirement (MR) is followed by the appropriate Standard and Guideline and the issue to which it responds, if any.

1. On mixed conifer sites, leave 4.2 standing dead trees per acre for cavity nester habitat and future down logs. Dead trees retained should be at least 15 inches DBH with 1 dead tree over 20" DBH for every 4 acres. Retain all pre-fire down woody material. On lodgepole pine sites, leave 12 standing dead trees per acre for cavity nester habitat and recruitment of down logs. Dead trees retained should be at least 10 inches DBH, if available. Retain all pre-fire down woody material. Avoid leaving trees with significant bole damage that are likely to fall in the short-term unless needed for GTRs. Snags with limbs and bark are preferred to fire hardened, limbless spikes (LRMP TM-4, WL-38, 72, SL-1) (MM/MR-Issues #1, 2).
2. Include appropriate contract language to protect habitat of threatened or endangered species if they are discovered following commencement of operations. For sensitive species found after commencement of operations, negotiate protection with purchaser (LRMP WL-1 to WL-34) (MR)(Issue #1) and specifically: a) Cease all project related activities immediately if a bald eagle nest or roosting activity is observed within or adjacent (1/4 mile) to the project (LRMP WL-1); b) Prohibit all project related activities (e.g. hauling, administrative travel) within 1/4 mile of the bald eagle nest northwest of the project during the nesting season (January 1-August 31), provided that the nest is determined to be active (LRMP WL-15); c) Cease all project related activities if a spotted owl nest is discovered or a sighting made within or adjacent (1/4 mile) to the project (LRMP M4-21).
3. Protect by avoidance any newly discovered heritage resource sites (MR/MM).
4. Harvest units in a manner that would maintain 80% of the area in an acceptable condition of soil productivity. Use harvest methods designed to lessen impacts on the soil resource, including some or all of the following: a) designate or use existing skid trails; b) restrict skidders to trails and limit off-trail travel of other harvest equipment; c) limit use of ground-based mechanized equipment on slopes greater than 30 percent; d) sufficient snow and/or frozen ground (SL-1, 2, 3, 4, 5). Design management practices, including fuels management (both burning and mowing operations) so that no more than 20 percent of an activity area (harvest unit, fuels treatment unit, etc.) may have detrimentally disturbed soil (compaction, erosion, displacement or severe burning) (LRMP SL-1, SL-3; Timber Best Management Practices [BMP] T-2, T-3 & T-13; Fuels Management BMP F-2) (MM/MR-Issue #2). After treatment, if monitoring shows an activity area to have more than 20 percent detrimental soil conditions then appropriate rehabilitation efforts would be initiated within these activity areas to reduce detrimental conditions below 20 percent (LRMP SL-4; Watershed Restoration BMP W-1).
5. Use standard contract provisions to reduce the likelihood of noxious weed spread (MR Appendix C). Avoid the introduction of noxious weeds into the project units by following mitigation and management recommendations in the Noxious Weed Risk Assessment.
6. Gopher baiting would occur only under the following conditions: all baiting would be underground, spilled bait would be completely removed and buried, monitoring would occur to determine the effect to non-target species and to determine the efficacy of the program, any gopher carcass found above ground would be buried (TM-10)(MM/MR). Cease control activities if a great gray owl is sighted in or within a 1/4 mile radius of the area and consult with a wildlife biologist.
7. Survey all roads into the project area and remove any spotted knapweed before activities begin. Flag weed sites for avoidance so that the seed bank in the soil is left undisturbed and noxious weed seed will not be carried into the units on vehicle tires. Note that the noxious weed sites along Roads 42 and 43 are currently being treated under the Deschutes National Forest Noxious Weed Control Plan.

## **WILDLIFE**

The following mitigations listed are in compliance with the Wildlife Report (WR) and conclusions in the Biological Evaluation (BE). These measures apply equally to action alternatives, unless noted.



8. Promote climatic climax late-successional and old-growth habitat within those plant associations capable of sustaining NRF habitat (BA PDC Criteria IIb2), where it was previously designated as NRF (Unit 2 in Action Alternatives)(MM, Issue #1). Accomplish this by planting desired tree species and retaining shrubs by not underburning.

9. Provide connectivity for northern spotted owls and other LOS dependent species between the Browns Mountain and Round Mountain Late Successional Reserves by retaining dead and green trees in Unit 6 to facilitate movement of wildlife, using a "canopy" cover goal of 20-30% in strategic patches; and retaining adequate amounts of coarse woody materials to facilitate movements by terrestrial species through the corridor using guidelines for the American marten (LRMP S&G WL-63). Specifically, apply this measure to Unit 6 (Alt. 2) or 6b (Alt. 3).

10. Provide coarse woody material (CWM) for wildlife (LRMP S&G WL-72) and soils productivity (LRMP S&G SL-1). Retain all pre-fire existing CWM (NWFP C-40). Limb boles of harvested trees and leave tops below commercial size on site with an emphasis on materials greater than 3 inches in diameter. Retain a minimum of 15 tons of CWM per acre where it exists, as recommended in the soils report (Appendix B). Piles or concentrations meeting established direction are also acceptable (LRMP Standards and Guidelines WL-63 and 73). Retain all ponderosa pine, Douglas fir and white fir trees fallen during fire suppression activities that are >16" average diameter and > than 16' in length. Retain all lodgepole pine trees fallen during fire suppression activities that are >12" average diameter and > than 16' in length (NWFP C-40) (MM/MR, Issues #1, 2).

11. Within dry mixed conifer stands that had low to moderate fire severity, retain damaged green trees that have a high probability of falling in the short-term or have recently fallen due to bole damage as follows:

White fir >16" dbh	Total tpa (all spp. combined) = 3.3	[note these trees are in addition to GTRs, 60' x .60 =36'; 120/36=3.3]
Ponderosa pine >16" dbh		

12. Designate for retention where available (i.e., in low to moderate severity fire areas) a minimum of 4.2 green tree replacements (GTRs) per acre with an emphasis on Douglas fir, ponderosa pine and white fir (in order of priority) (NWFP C-41, C-46). Select the largest, least fire damaged trees available that provide good spatial distribution. Select the largest, oldest, and/or decadent trees available. GTR trees should be left in un-harvested patches that comprise a minimum of 15% of each individual unit area (refer to MM#10 [WR]). They may range in size from .5 to 2.5+ acres. If patches providing GTR trees are not available then individual, dispersed trees may be left. Patches may include snags, damaged green trees for logs, existing logs, deer cover, etc. to reduce the overall effort required to meet wildlife related mitigation measures (MR, Issue #1). Patches will be identified through GPS for tracking purposes.

13. Retain 15% of the area associated with EA units 1A, 1B, 6, and 7 for snags, green tree retention and biodiversity. As a general rule, 70% of the area retained should be larger than .5 acres with the remainder as individual clumps less than .5 acres. Clumps would be located within or contiguous to unit boundaries. To provide wildlife habitat in EA unit 2, retain 3 or more no treatment cover patches for a total of 10 acres. Retain two patches of at least 2 acres with the remainder in smaller patches of .5 - 1 acre each. Designate patches in the interior of the unit, a minimum of 100 feet (typically) from the unit boundary. Where available, select the largest, least damaged trees with existing CWM (MR/MM, Issue #1).

14. Protect newly discovered raptor nests within or adjacent to the project's proposed units from direct or indirect effects (e.g. disturbance). Refer to LRMP S&Gs WL-2-5, WL-11, 12, and WL-19-20 for details (Issue #1).

15. All temporary roads shall be constructed to the minimum necessary to attain stabilization of the roadbed. Upon completion of project, these facilities shall be decommissioned. Purchaser shall remove all material used to stabilize roadbed. Removed material shall be placed or stockpiled as designated by the Forest Service. Roadbed shall be subsoiled, debris scattered throughout roadbed and the entrance bermed to exclude motorized travel.

### **Mitigation Measures Specific to Alternative 2:**

Other mitigation measures, management requirements and management opportunities specific to Alternative 2 include:

1. Provide BD or appropriated funds to burn an estimated 370 tons of landing pile fuels in EA units 1-7. All harvested trees greater than 21" dbh would be whole tree yarded or leave top attached. A fuels treatment prescription is planned for each unit to meet fuels management and other resource objectives. Where burning is prescribed, the Oregon Department of Forestry Smoke Management Plan would be followed to directly influence the quantity and timing of burning operations (SL-1, SL-5, FF-9, FF-11) (MR-Issues #2).

**Mitigation Measures Specific to Alternative 3:**

1. Provide BD or appropriated funds to burn an estimated 330 tons of landing pile fuels in EA units 1-7. All harvested trees would be whole tree yarded or leave top attached. A fuels treatment prescription is planned for each unit to meet fuels management and other resource objectives. Where burning is prescribed, the Oregon Department of Forestry Smoke Management Plan would be followed to directly influence the quantity and timing of burning operations (SL-1, SL-5, FF-9, FF-11) (MR-Issues #2).
2. Salvaged trees in units 1B and 6B that are 21 inches dbh or larger that are in areas of high burn intensity as mapped in the EA would be limbed and topped on site to provide additional site organic matter (MM, Issue #2). Fuel generated from these activities would not exceed 15 tons/acre.

**F. Projects Under the Authority of the Knudsen/Vandenberg (K-V) Act**

The following projects are listed in general order of priority for the Crane Prairie Complex project. Some treatments have different priorities based on site-specific attributes, or ongoing data gathering. Listed projects would be implemented after financial obligations, such as payments to County Governments, are met. In most cases, mitigation measures would be prioritized for funding over enhancement projects.

**Required K-V:** These are required activities and related to reforestation.

1. Essential reforestation, including subsoiling skid roads and landings.

**Non-required K-V:** These activities are not required for full funding under K-V and may be funded from other sources.

1. Road obliterations.
2. Individual tree dwarf mistletoe pruning.
3. Noxious weed monitoring and control.
4. Revegetate with native plant species any areas that have been disturbed.

**G. Monitoring**

Implementation and effectiveness monitoring would be done in a manner and scope that would insure meeting the EA and LRMP requirements. Conclusions and recommendations in a timely report to the responsible line officer would be accomplished in order to make necessary adjustments in this project or in future related actions.

The project Monitoring Plan (Appendix M), includes implementation monitoring of:

1. Unit layout;
2. Wildlife cover designation;
3. MR and MM implementation;

and effectiveness monitoring of:

1. Road closures methods;
2. Subsoiling effectiveness;
3. Noxious weed prevention;
4. Tree mortality predictions.

**Alternative Summary****Table 1. Summary and Comparison of Harvest by Alternative.**

			VOLUME BY ALTERNATIVE		
			1	2	3
EA UNIT	SILV. RX	ACRE Alt. 1/Alt. 2S	VOL. MBF	VOL. MBF	VOL. MBF
1A	HSV	180/180	0	1200	1000
1B	HSV	122/124	0	1000	1000
2	HSV	89/89	0	400	400
3	HSV	16/16	0	100	100
4	HSV	11/11	0	80	80
5	HSV	11/11	0	50	50
6A	HSV	70/0	0	180	50
6B	HSV	24/10	0	70	0
7	HSV	24/30	0	120	160
Totals		547/471	0	3200	2840

**Table 2. Comparison of Alternatives.**

Issue or Activity	Alt. 1	Alt. 2	Alt. 3
Cunits of fiber harvested	0	6200	5600
Thousands of board feet (all products)	0	3200	2840
Thousands of board feet (sawtimber only)	0	2000	1800
Jobs supported (8.92 jobs/MMBF; 1995 TSPIRS)	0	29	26
Tons of particulate emissions (PM 10)	0	2.25	2.0
Acres of planting	0	208	144
Acres of salvage harvest	0	547	471
Acres of subsoiling needed (estimate)	0	71	56
Percent of fires retained (no salvage)	100%	23%	34%
Acres of LOS burned and not salvaged	295	61	139
Acres of LOS burned and salvaged	0	234	156
Estimated acres of mod-high mortality retained	625	80	156
East-west connective corridor provided (short-term)	yes	no	partial
East-west connective corridor provided (long-term)	no	yes	partial

Estimated total acres >10 acres in size and >15 tons/acre	580	80	155
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**GOTO**

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# **Crane Prairie Complex Environmental Assessment**

## **Bend/Fort Rock Ranger District**

### **Deschutes National Forest**

### **III. ENVIRONMENTAL EFFECTS**

This section describes the effects to the environment that would occur if the alternatives were implemented. Estimated effects are discussed in terms of environmental changes from the current situation and include qualitative and quantitative assessments of direct, indirect and cumulative effects.

#### **Wildlife Report Summary**

##### **Summary of No Action Alternative Effects**

The effects of the No Action Alternative for the proposed salvage project include:

**Beneficial:** 1) a greater amount of deer hiding cover would be retained, although it would be of marginal quality; 2) a greater amount of potential raptor nesting habitat would be retained but it would most likely be used by small forest accipiters (e.g., sharp-shinned hawk) and not species requiring more homogenous LOS stands (e.g., northern goshawk); 3) there would be a short-term retention of spotted owl NRF habitat in small, disconnected patches, however eventually the residual green trees would decline in quality due to insect and disease vectors; 4) there would be greater numbers of snags and down logs; and 5) there would be less disturbance from management activities.

**Negative:** 1) reestablishment of forested habitat in the high intensity burn areas would be delayed due to the slower regeneration of coniferous species; 2) effects of insect and disease vectors would likely be more pronounced on the residual trees in the low to moderate intensity burn areas due to the amount of suitable habitat available (e.g., weakened trees); 3) the quality of dispersal habitat in the connectivity corridor would be lower in the long-term due to the slower regeneration of coniferous species; 4) the risk of future catastrophic fire would be significantly higher without the removal of dead and damaged trees; and 5) large overstory ponderosa pine trees would continue to decline in health due to increased insect and disease agents and competition from the residual understory of white fir and lodgepole pine.

##### **Summary of Action Alternative Effects**

The following analysis addresses the effects of the Alternatives upon Management Indicator Species

(LRMP, [MIS]), ecological indicators (FSM, species and/or habitats), Survey and Manage Species (NWFP, [S&M]), Species of Concern (Fish and Wildlife Service designation, [SOC]), and species designated as threatened, endangered, sensitive (Forest Service designation) or proposed/candidate for federal listing. The Biological Evaluation (BE) is available at the Bend-Ft. Rock District.

Management indicator species (MIS) are species that have populations that are identified as influenced by forest management activities. MISs for the Deschutes National Forest include the bald eagle, northern spotted owl, accipiter hawks, golden eagle, red-tailed hawk, osprey, great gray owl, great blue heron, woodpeckers, waterfowl, peregrine falcon, wolverine, elk, deer, American marten, and the Townsend's big-eared bat.

*Connectivity/Fragmentation* - Connectivity (vertical and horizontal) is a measure of the extent to which habitats are linked and meet the needs for breeding, feeding, dispersal, and movement of wildlife and fish species (FEMAT 1993). In essence, connectivity measures the effectiveness of providing dispersal habitat that allows wildlife to occupy suitable habitats and thereby better assure population viability.

The environmental assessment (EA) for the nearby Charlie Brown Project area has designated a revised Connectivity Corridor due to the effects of the Crane Prairie Complex fire on the original corridor. This corridor utilizes approximately 50% of the fire area to the south. Corridors are designed to provide a minimum width of 1,000 feet of forested cover through a one-mile wide zone. Canopy cover should be at least 40% and preferably higher (Conservation Strategy for the Northern Spotted Owl, p. 327). See the Connectivity Map, [Figure 6](#).

With Alternative 1, recruitment of coarse woody material (CWM) would improve connectivity for animals that move through heavy downfall such as the American marten. Avian species relying on dense stems to move through would lose connectivity habitat as the snags begin to fall. Long-term recovery of conifer canopy would be slow since regeneration would depend on natural seed fall from remaining live trees around the fire perimeter instead of planted seedlings; also, establishment of seedlings would be hindered by native shrub development.

The effects of the action alternatives are as follows: 1) Alternative 2 units 1, 6 and 7 impact a broad area across about 1/2 mile of the northern portion of the corridor; 2) Alternative 3 units 1B, 6B and 7 have a similar effect but leave un-harvested portions that would likely facilitate wildlife movement through the area. Thus, Alternative 3 has less impact to the corridor. In addition, the corridor's effectiveness was evaluated outside of the fire area. Portions of the fire area retained in an untreated condition combined with the unburned stands adjacent to this area provide habitat that has adequate green canopy, although it is fragmented by past harvest units

*Effects to Connectivity Habitat* - Connectivity corridors were designated and evaluated in the Browns/Wickiup Watershed Analysis and the Browns/Round Mountain Late Successional Reserve Assessment (USDA 1997). The Crane Prairie Complex fire resulted in a realignment of the existing corridor that traverses the west side of Round Mountain in order to maintain connection to Browns Mountain. Under

implementation of the No Action Alternative, there would be no additional immediate change to connectivity and fragmentation. However, over the long term, it is likely that large fires (similar to the three large fires since 1984) would continue to play a role in fragmentation of corridors, especially in the proximity to the buttes where linkage is most important.

Alternative 2 retains 23% of the fire area in an unsalvaged condition. Although the fire has reduced connectivity, the salvage of most dead trees > 5" dbh on 547 acres of the wildfire, as included with Alternative 2, would further reduce opportunities for movement of some species. There would be limited recruitment of down woody material within salvage areas (EA units 1 and 2) to provide habitat for species that rely on dead wood. The retention of large snags and coarse woody material currently on the ground would provide habitat that may facilitate movement and dispersal of some species. However, dense corridors that several species utilize for movement are missing within the fire. With the absence of corridors maintained through the interior of the burn, large, old structure (LOS) and designated old growth stands to the east and west would continue to be connected, but the distance of travel would increase and the numbers of available corridors between these stands would be reduced. Portions of the fire that burned severely and are currently non-stocked would be reforested by hand planting tree seedlings to accelerate the development of future connective habitat.

Alternative 3 retains approximately 34% of the fire unsalvaged and maintains a larger portion of a wildlife corridor within the fire to help facilitate east-west connectivity. As dead trees begin to fall over during the next 5-10 years, horizontal connectivity would increase within this corridor; providing habitat for species that utilize this ground habitat. This should provide higher quality connectivity across the landscape and facilitate travel and dispersal to and between adjacent stands. Selected portions of the fires that are currently non-stocked would be reforested by hand planting tree seedlings to accelerate the development of future connective habitat. This would assist in providing the necessary habitat components that provide connectivity and facilitate movement of wildlife to more suitable habitats.

*Cavity Nester Habitat and Coarse Woody Material (CWM)* - Many primary and secondary cavity nesters occur within the fires (all woodpeckers are management indicator species (MIS)), including the hairy woodpecker, northern three-toed woodpecker, black-backed woodpecker, common flicker, mountain chickadee and the red-breasted nuthatch. These species depend on snags and large defective trees for their survival. Numbers and locations of snags across the landscape are important for maintaining viable populations of these species. Many species of bats, including the small-footed myotis (Species of Concern (SOC)), long-eared myotis (SOC), long-legged myotis (SOC), Yuma myotis (SOC), Fringed myotis (SOC) and the pallid bat (State sensitive species), are dependent on snags for a portion of their life stages. The olive-sided flycatcher (SOC) also uses snags for foraging.

Numbers of snags, logs and old stumps were considerably reduced by the wildfire. Many of the trees killed by the fire in the high severity areas are spike snags with no bark or limbs, which are not considered as primary habitat for woodpeckers and other cavity nesters. However, trees killed directly or indirectly within the moderate and low severity fire areas would provide high quality snags because most have retained their limbs and bark. Small diameter white fir and lodgepole pine snags would likely blow over within a few years, but provide short-term, high quality foraging habitat for woodpeckers and

other cavity dependent species. Large diameter snags of all species would remain on a longer term and provide nesting habitat.

Tables 3 and 4 show the desired minimum numbers of snags and CWM by plant association, as developed for local conditions (NWFP, LRMP, ICBEMP Draft EIS, and the Deschutes National Forest Snag and Log Guide).

**Table 3. Desired Minimum Snags by Plant Association.**

Plant Association Group	Target Snag Density (100% MPP)	Trees per Acre 8-12 inches dbh	Average Diameter (inches dbh)	Trees per Acre 12-21 inches dbh	Average Diameter (inches dbh)	Tree per Acres >21 inches dbh	Average Diameter (inches dbh)
Lodgepole Pine Wet	1.8 per acre	1.21	>10 inches	.59	>12 inches	N/A	N/A
Mixed Conifer Dry	2.25 per acre	N/A	N/A	2.11	>15 inches	.14	>20 inches

The proposed salvage project would reduce the amount of available snags and coarse woody materials. Alternative 2 would reduce available snags and CWM to lower levels than would than Alternative 3 because of the larger acreage proposed for salvage. The NWFP and LRMP direct that the minimum population level objective for snag dependent birds is 40%. However, the NWFP also has direction for Protection Buffer Species (currently Survey and Manage Species, NWFP, C-46) directing that those that are snag dependent be managed at the 100% level. All of the habitats affected by the wildfire have the potential to support these species. Therefore, the Mitigation Measures are set at the 100% population level, which is further directed by the Record of Decision (ROD) and Standards and Guidelines (S&Gs) for the Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures (2001, IX, pp. 33-35).

**Table 4. Desired Minimum Coarse Woody Material.**

Species	Pieces per Acre	Diameter at Small End	Piece Length and Total Lineal Feet Required
Ponderosa Pine	3-6	12 inches	>6 feet; 20-40 feet



Mixed Conifer	15-20	12 inches	>6 feet; 100-140 feet
Lodgepole Pine	15-20	8 inches	>8 feet; 120-160 feet

*Effects to Cavity Nester Habitat and CWM* - With Alternative 1, all snags would remain, thereby increasing future CWM levels when the snags begin to fall. Snag numbers would remain at present levels, providing high quality foraging and nesting habitat for the variety of snag dependent species in the area. Foraging habitat would decline as the fire-killed trees fall and as the fire related insect activity decreases. Replacement live trees are lacking in the fire interior and the reliance on natural regeneration could delay the establishment and species composition of replacement trees by 10 to 15 years or more.

Under Alternative 2, small areas of moderate or greater mortality would not be salvaged on approximately 80 acres, providing dense patches of foraging and nesting habitat. Fiber salvage in the remainder of the fire areas would reduce foraging habitat as some cavity-dependent species rely on more dense concentrations of tree boles for security. Alternative 3 would provide increased foraging and nesting areas, as it retains in an unsalvaged condition an additional 10% above Alternative 2 levels, including 156 acres of moderate or greater mortality. Neither of the action alternatives would reduce current snag levels below those described in the Northwest Forest Plan, as amended for Survey and Manage Species (Record of Decision, S&Gs, pp 33-35). Snags would remain in excess of 100% MPP with snags >15" dbh. The EA units, which have fiber salvage, would have a minimum of 4.2 snags per acre retained, on average, within or adjacent to the salvage areas. Both Alternatives 2 and 3 would plant ponderosa pine seedlings to accelerate the development of green tree replacements for snags (208 acres in Alternative 2; 144 acres in Alternative 3). For low snag densities, the length of time from when fire-created snags fall and the planted trees are large enough to provide cavity habitat would be shortened by 10 to 15 years or more.

*Green Tree Retention (GTR)* - The purpose of GTR is to retain a number of live stems post-treatment in order to ensure that, as these stems die they provide habitat for primary cavity nesters, and eventually function as CWM for species relying on this habitat component. For the more long-lived tree species (e. g., ponderosa pine) GTR maintains a large tree component within a stand and allows for an accelerated return to a multi-strata canopy condition, even if the stand has undergone a regression of structure to the earliest stages, as happened within much of the Crane Prairie Complex wildfire area.

The fire killed virtually all trees within the high severity areas (see Figures 2 and 3). Within moderate severity areas the larger ponderosa pine and Douglas fir will most likely survive. Small diameter lodgepole pine and white fir in the fire area are not expected to survive. Thus, the majority of the surviving GTR trees within areas proposed for salvage are ponderosa pine trees. There is no difference between the action alternatives, as undamaged green trees would not be harvested under either alternative.

*15% Retention Areas* - The Northwest Forest Plan has direction for the retention of untreated areas associated with "cutting units (stands)" at the rate of 15% in the matrix allocation (NWFP C-41, 42).

Patches of at least 2.5 acres are recommended, which can contribute to the prescribed levels of snags, green-tree retention and coarse woody materials. However, these attributes can also be provided individually or in smaller clumps. At least 70% of the total retention area must be in patches .2-1.0+ hectare (approximately .5 - 1.5+ acres) in size with the remainder as dispersed structures. This direction is problematic in those areas of the wildfire that sustained high severity burning. Alternative 2 would salvage 79% of the burn area with the pre-fire stage 6 multi-story and stage 7 single-story forest; Alternative 3 would salvage 53% of this area. Areas that are excluded from salvage by Alternative 3 that meet the 15% retention direction are estimated to total 130 acres or 18% of the fire's area; approximately 11% would be retained under Alternative 2. Additional acres of LOS would be protected within designated units in patches and as individual trees. Neither Action Alternative would eliminate LOS, but they would simplify stand structure.

*Effects to GTR* - The project area still contains green trees along the edges of the project boundaries. With Alternative 1, current numbers and distribution of GTR trees would be retained.

Under the action alternatives, many of the green trees along the edges of the fire perimeter have been excluded from the EA units proposed for salvage. Pruning, topping, or girdling of heavily infected mistletoe infected GTR trees that remain in the overstory following salvage and reforestation efforts may occur under both action alternatives. All remaining green ponderosa pine trees that have survived the fire would not be salvaged. Hand planting of conifer seedlings would accelerate the development of GTR trees. The action alternatives would meet Standards and Guidelines in the LRMP as amended by the NWFP for Matrix (C-41).

*Aquatic/Riparian/Wet Meadow/Spring Habitats* - There are none present within the project's boundary.

*Late and Old Structure (LOS) Forest* - The wildfire burned approximately 295 acres of LOS forest, including 250 acres classified as stage 6 multi-story and 45 acres of stage 7 single-story. Approximately 70% of the area was in mixed conifer dry forest, with the balance in lodgepole pine wet forest. Approximately 50 acres of the LOS was affected by high severity fire, which eliminated it. The balance was dominated by moderate intensity, but low intensity fire occurred in patches that include both multi-story and single-story stands. The structural classification in the low intensity areas would not change. The areas in moderate intensity would likely remain LOS because of the resistance of ponderosa pine to fire. However, the stand structure would likely be simplified due to direct and indirect mortality of the thin barked true firs and lodgepole pine in these stands through time.

*Effects to LOS* - The effects of Alternatives 2 and 3 would include: 1) the removal of dead and damaged trees would move the stand structure in LOS state 6 to LOS stage 7, late/old single-story that is dominated by ponderosa pine; 2) the reduction in damaged trees would likely reduce insect attacks (e.g., *Ips spp.*) on the residual green trees; and 3) the reduction of the fuel loading would greatly reduce the risk of catastrophic fire in the future. Alternative 2 would manage more of the fire area towards a long-term stage 7 structure than Alternative 3.

*Survey and Manage (S&M) Species* - The following species with Survey and Manage status are likely to have used the project's area prior to the wildfire: white-headed woodpecker, pygmy nuthatch, black-backed woodpecker and flammulated owl. All are likely to occupy the area post-fire. Proposed salvage harvests by either action alternative would not be detrimental to these species provided that the mitigation measures for snags, coarse woody materials and green-tree retention are met. The proposed salvage would likely have long-term beneficial effects for these species, because of the retention and reduction of competitive stresses on overstory ponderosa pine trees. The great gray owl also has S&M status and is known to use habitats in the vicinity. It was unlikely to have occupied the area pre-fire due to a lack of foraging habitats (e.g., meadows). However, this species may use openings created by wildfire or timber harvest that support gopher populations. Although rodent control activities would occur in areas planned for planting tree seedlings, the project area may provide some foraging habitat for this species for a short duration if gophers become established before reforestation growth reduces their vulnerability to owls. A mitigation measure (#6) was developed to protect great gray owls in the event of rodent control activities.

*Special/Unique Habitats* - There are no meadows, aquatic/riparian habitats, cliffs, talus slopes, rock outcrops, caves, bridges, old buildings or other special or unique habitats within the project's area.

*Ecological Indicator Species* - The NWFP direction for lands designated as matrix has an emphasis to maintain LOS components on the landscape including snags, coarse woody materials, and large trees. For this project's habitat types the ecological indicator species that represents these components is the pileated woodpecker. This species has a home range larger than the project's area, however the mitigation measures identified for snags, coarse woody materials and green-tree retention should provide important contributions to their local population.

*Raptor Sites and Habitat* - No known historic or current raptor nests sites were in the project's boundary. The Charlie Brown project had previously conducted surveys in the area for northern goshawk, Cooper's hawk, and sharp-shinned hawk. Surveys for northern spotted owl and great gray owl were done on the nearby Browns Mountain. The quality and extent of Late and Old Structure (LOS) forest (i.e., old growth) would have been favorable to several species prior to the fire. For example, there was a historic goshawk nest north of the fire that was eliminated by the 1500 acre Four Corners fire in 1994. The nearest known active goshawk nest is approximately 3.5 miles north near Lookout Mountain. The high severity burn areas of the fire eliminated nesting habitats for raptors, however some species would likely forage in these areas (e.g., red-tailed hawk). The moderate and low intensity portions of the fire would still have some potentially suitable nesting and foraging habitats for some raptor species (e.g. sharp-shinned hawk, osprey, and Cooper's hawk).

*Effects to Raptors* - The proposed salvage of dead and damaged trees by the project may reduce the nesting opportunities for some raptor species (e.g. sharp-shinned hawk). Alternative 2 would have a greater impact than Alternative 3, but it is not possible to quantify the difference. However, the project's area is very small within the context of these species' home ranges and mobility. Reforestation of the project area would likely produce better raptor habitat in the long-term.

*Big Game Habitat* - The entire area of the project is classified as summer range. It may also be used during spring and fall migrations by deer and elk. Approximately, 532 acres of the 715-acre fire area (74%) of the project's area was classified as deer hiding cover in the Charlie Brown Environmental Assessment prior to the wildfire. Elk habitat components (e.g., forage, thermal cover, hiding cover) were not assessed for this area by the project, because elk use levels are very low in this area.

Presently there is a loss of roughly 150 acres of hiding cover in the high burn severity areas and an estimated loss of 200 acres of hiding cover in the moderate burn severity areas. Thus, a total of 350 acres (66%) of cover within the project's boundary has been lost. Portions of the moderately burned areas are still providing cover although it is patchy. Areas of low fire severity were not providing hiding cover prior to the fire. Based on these estimates, the residual cover amount would be approximately 25% for the project's area. In the context of the surrounding subwatershed, only about 1% of the hiding cover has been lost.

*Open Road Density* - Roads within the project's boundary currently exist at the rate of 4.68 miles per square mile. The LRMP has a management target objective (WL-53, TS-11-14) of 2.5 miles per square mile for individual implementation units (i.e., subwatersheds). This goal is not applied specifically to this project due to the area's small size (1.12 square mile). Further, the project lies entirely within the boundary of the Charlie Brown Project. The Environmental Assessment for Charlie Brown addressed the road density issue and proposed 1.37 miles of road obliteration within the fire perimeter, including segments of roads 200, 268, 270, 300, 410 and 800. This would be applied to both action alternatives only. The net open road density for the salvage project's area would then be reduced to 3.46 miles per square mile following implementation of these local closures. For the Wickiup subwatershed the net open road density would be reduced to 1.60 miles per square mile from the current level of 2.35 miles per square mile, after the described closures are implemented by the Charlie Brown Project. A project wide public access closure is presently in effect until September 2003 (Appendix H). It was initiated for safety reasons but would also reduce potential disturbance to wildlife using the burned area.

*Effects to Big Game Habitat* - With Alternative 1, the dead trees would function as some form of security cover as they fall down over the next 10 years. Regeneration of trees would occur slowly from the fire perimeters, reducing sight distance as they attain 6-10 feet in height over the next 15 to 20 years.

The proposed salvage of dead and damaged trees within the project would further reduce the amount of remaining cover. Alternative 2 would remove more cover than Alternative 3, but it is not possible to calculate the exact acreages of each due to the patchiness of the cover. However, damage from the fire to white fir and lodgepole pine trees in the understory of the remaining cover patches is considerable. A majority of these smaller trees have been killed by the fire or would die from secondary causes including insects, root rot and blowdown. The fire has also impacted shrubs including *Ceanothus* spp. and golden chinkapin, which also contribute to hiding cover. It is likely that even without salvage activities, the residual cover would continue to diminish.

Salvage would selectively remove a portion of the dead trees that, if left, would help to reduce sight

distances after they fall and accumulate on the ground. Of the action alternatives, Alternative 3 would have less of an effect because it would retain 156 acres of moderate to high mortality stands. The effect with both alternatives would be minor and short-term because regeneration of the planted seedlings would begin to provide cover at about year 10 versus the 20-year time period anticipated for Alternative 1. Neither of the action alternatives is expected to negatively impact local elk and deer populations. There are no current or future entries planned within this subwatershed that would reduce cover below the 30% level specified in the LRMP (WL-54).

*Neotropical Migratory Birds (NTMBS)* - The fire affected habitat for a variety of NTMBS, which are a group of international concern. Many species have evolved in the presence of fire. Retention of snags primarily benefits NTMBS that are secondary cavity nesters. Retention of snags, Coarse Woody Material, and some live trees results in a more structurally diverse stand. Also, these attributes provide habitat features needed by certain species, resulting in greater diversity and abundance of species in coniferous stands. With Alternative 1, current habitat conditions for cavity nesters, dead tree feeders, ground foragers, and other open-habitat type bird species would remain unchanged. Under Alternatives 2 and 3, snags would be left exceeding 100% MPP. Salvaging dead trees would not directly impact NTMBS unless they are nesting. The largest potential for negative impacts generated by all action alternatives is likely to be logging disturbance and timing. Spring and summer logging activities may reduce local NTMBS numbers by inadvertently destroying nests and broods but is not expected to compromise population viability at the landscape level.

*Effects to NTMBS* - Potential adverse effects to migrant birds were evaluated. Areas that have had high fire severity no longer provide habitat for these species other than potential foraging. Low to moderate fire severity areas continue to have potential habitat for nesting and foraging. The removal of dead and damaged trees has a low likelihood of direct impact to these species. There are a significant number of trees that would not be harvested. Further, the total area of the fire is very small in relation to the range sizes and overall distribution of these species. However, some minor negative impacts may occur, therefore, Alternative 3 would be less impacting than Alternative 2 due to the smaller amount of acreage proposed for salvage. Mitigation measures for snags, 15% retention areas and green-tree retention would mitigate these effects. Seasonal restrictions for salvage operations were not considered necessary.

Implementing any of the alternatives along with known and reasonable foreseen future land management activities would not alter any habitat to the extent that current populations would not be able to maintain viable numbers within the fire, the surrounding areas and watersheds. There would be some short-term direct and indirect effects associated with the action alternatives. Over the long term, many of these effects would be reversed or mitigated by the benefits and effects of the planned vegetation management activities combined with reforestation and road closures. Alternatives 2 and 3 reduce fuels loads and the risk for future high intensity wildfires within the Crane Prairie Complex fire area. Future activities such as thinning and other vegetation management activities would be timed, based on the Standards and Guidelines of the LRMP, to ensure that there would be no cumulative adverse effects on wildlife habitat or species across the landscape.

*American Marten* - Use of poisons for gopher control has the potential to impact individual American

marten through secondary consumption of poisoned prey. However, the potential is low since gophers that ingest strychnine die below ground a vast majority of the time. In addition, gopher control normally occurs in reforestation units with no overhead canopy and low ground level complexity where martens are not likely to spend time foraging (see Mitigation Measure #6).

## **Biological Evaluation Summary**

*Northern Spotted Owl (NSO)* - No current or historic nests or sightings of spotted owls are known within or near the project. Surveys were completed for spotted owls on the nearby Browns Mountain in recent years with negative results. The nearest documented nest sites are approximately 7 miles northwest of the project's boundary. There is no designated Critical Habitat for NSO within or near the project, and it is approximately 6 miles to the nearest Critical Habitat Unit. Nesting, Roosting and Foraging (NRF) habitat for spotted owls has been mapped within the project's boundary. Using the most current data from the 2001-2003 Joint Aquatic and Terrestrial Programmatic Biological Assessment (April 2001) there were approximately 56 NRF acres remaining within the project. However, field evaluation, including consultations with the project's silviculturalist, the Forest Wildlife Biologist, and representatives from the Oregon Department of Fish and Wildlife and the U.S. Fish and Wildlife Service has concluded that the fire has eliminated the NRF habitat within the project's boundary. Therefore, the proposed salvage activities in both Action Alternatives, including the cutting of trees significantly damaged (vs. killed) by the fire, would have No Effect on the northern spotted owl.

*Canada Lynx* - There is no designated suitable or potential habitat for lynx within or near the project's boundary. The nearest Lynx Habitat Unit is about 20 miles north of the project area. Further, the area is not designated as a Key Linkage Area. Lynx surveys (i.e., scented hair pads) have been completed for several years in the Cascade Mountains west of the project's area with negative results. In addition, there have been no documented historic sightings of lynx in the vicinity of the project. Therefore, the presence of lynx in the project's vicinity is highly unlikely and would in all probability only be an animal moving through the area. Given the mobility and range size of lynx, they could avoid areas lacking habitat attributes necessary for their security and survival. The proposed project would have No Effect on the Canada Lynx for either action alternative.

*American Peregrine Falcon* - There are no known occurrences of peregrine falcon in the vicinity of the project. The nearest known historic nest site is approximately 19 miles northeast of the project. There are no suitable nesting habitats (e.g., cliffs) near the project. Peregrine could potentially forage for bird prey species in the project's area, however it is unlikely because they prefer areas such as riparian zones with higher densities of birds. The proposed project would have No Impact on the American Peregrine Falcon for either action alternative.

*California Wolverine* - There are no known occurrences of wolverine in the vicinity of the project. Wolverines prefer isolated, high elevation areas (e.g., alpine, sub-alpine zones of Cascade Mountains), however they have been observed at considerable distances from these areas (e.g., low elevation winter ranges). There is a possibility that wolverine could travel through the project's area. However, given the

mobility and range size of wolverine they could avoid areas lacking habitat attributes necessary for their security and survival. The proposed project would have No Impact on the California Wolverine for either action alternative.

*Pacific Fisher* - There are no known occurrences of fisher in the vicinity of the project. Fisher prefer dense, mature coniferous forest and would more likely be found in the higher elevations in the Cascade mountains west of the project area. The proposed project would have No Impact on the Pacific Fisher for either action alternative.

*Northern Bald Eagle* - No current or historic nests of bald eagle occur within the project boundary. The nearest known nest is approximately 2 miles northwest of the project area. Bald eagles may travel over the area, but foraging activity is unlikely as the birds primarily use the nearby reservoirs. A sub-adult bald eagle was observed perching on a snag near the summit of Round Mountain in recent years, and that area is considered to have potential for nesting. The Crane Prairie fire eliminated some potential ponderosa pine nest trees, but the vast majority would survive. The proposed project would not salvage harvest large, live ponderosa pine that have high probability for survival, and would retain adequate numbers of snags (i.e., potential perches). For these reasons, with mitigation measures, the project would have No Effect on the northern bald eagle.

### Cumulative Effects to Wildlife

The Charlie Brown EA analyzed the area within the fire perimeter. The effects on deer hiding cover by the fire were assessed, and the effects of the fire at the subwatershed level were determined to be less than a 1% loss. The proposed salvage action alternatives would further degrade the amount of hiding cover available for deer, but the residual amount post-harvest would still meet the established Standards and Guidelines at the subwatershed scale. Amount of loss of LOS was determined to be less than 1% of the total amount of LOS in the Charlie Brown Project's area. The fire modified approximately 7% of the LOS. The proposed salvage action alternatives would further simplify the areas of LOS that were modified by fire to stands that are more single-storied, however none of the LOS remaining post-fire would be eliminated. Other effects of the proposed salvage action alternatives on the other species and habitats are considered to be non-impacting for the reasons described in each category. There would be no effects from the salvage action alternatives on aquatic habitats, riparian habitats or unique/sensitive habitats, which are categories of particular interest for cumulative effects. In summary, the effects of the proposed salvage action alternatives are localized and would not contribute to cumulative adverse effects at the subwatershed and/or landscape scales on wildlife species and habitats.

### Fuels and Smoke Management

*Existing Condition* - The largest fire of the Crane Prairie Complex started in a lodgepole pine stand with a large component of dead and down trees. The fire burned with high severity and heavy mortality of even the largest trees where fuels were heavy (greater than 20 tons per acre) on the forest floor and stand densities were thick with multiple age classes. Where fuels were lighter on the forest floor and stands

did not provide an opportunity for ground fires to move into crowns of trees, the fire burned with much less intensity. The larger ponderosa pine in this area survived due to its fire tolerance; however, the white fir and lodgepole pine not killed during the fire will probably not survive. Round Mountain provides the wildfire detection lookout for this upper elevation portion of the District. During the Crane Prairie Complex fire, the lookout stationed on Round Mountain was evacuated because of the proximity and intensity of the fire.

*No Action (Alternative 1)* - The majority of fuels and biomass is currently in standing dead trees. With no salvage of fire-killed trees, fuel loading on the forest floor would build as snags fall to the ground. Potential fuel loads of down material inside the fire perimeters would range from 5 tons per acre to over 80 tons per acre within the next 10-20 years. More than half of these trees would fall within 5 to 7 years, becoming the primary component by weight of the down fuel loading. Within fifteen years over 90% of the fire killed trees would have fallen. In the moderately-to-heavily burned areas, it is estimated that fuel tonnage would average approximately 60-80 tons per acre (TPA) on the forest floor. This in conjunction with shrubs that would thrive from the sunlight on the forest floor would create a very hazardous fire potential. Within ten years, wildfire risk to the lookout, due to fuel conditions, would exceed the level of risk that existed prior to the wildfire. Within three years, a grass and brush understory would develop. Within ten years the overall predicted horizontal fuel load in the fire boundary would exceed meet LRMP Standards and Guidelines for General Forest (M8-27). A wildfire that started under these conditions would become a high intensity, high severity, running ground fire burning through the existing grass, brush and down trees. Control efforts would be hampered by the amount of down woody material on the ground. These conditions delay firefighter access, increase risks to firefighter safety, limit the effectiveness of hand tools for wildfire suppression, and require mechanical fireline construction. They also produce high-intensity wildfire behavior and increase wildfire size. Snags would pose an extreme and immediate hazard to suppression forces. Under this alternative, any fire starting within the burned areas would be less controllable, more hazardous to firefighter and public safety, more costly to contain and the effects on soils would be severe. This alternative would leave the Round Mountain Lookout at highest risk of loss from wildfire. A future wildfire would produce as much as 990 lbs. of PM10 per acre burned (compared to 170 lbs. of PM10 per acre for treated areas). This number is based on the assumptions that a fuel bed of grasses and brush has developed that would carry fire through the site and that dead fuel moistures are low enough that 50% of the standing and down fuels burn.

*Alternative 2* - The proposed action would salvage fire-killed trees on approximately 547 acres. In several burned areas, tree tops would be retained for soil productivity; Whole Tree Yard (WTY) or Leave Tops Attached (LTA) to the last log would be used on remaining salvage acres to help relocate fuels to the landings. There would be approximately 37 Landings with a total of approximately 370 tons of fuel. Utilization of fuel in landing piles would be an option for disposal depending on markets and economics. Burning of landing piles would be used if utilization does not occur. If burning occurs, there would be approximately 2 1/4 tons of Particulate Matter 10 microns and less in size (PM 10) produced. Approximately 80 acres would be retained after salvage that would have a fuel loading in excess of desired (15 TPA) that are at least 10 acres in patch size. Brush Disposal or Appropriated funds would be collected from the salvage sale to dispose of the landings and pay smoke management fees. Oregon



Dept. of Forestry Smoke Mgmt. Plan would be the guidance for prescribed burning.

Alternative 2 would remove all dead and dying white fir and lodgepole pine >5" in diameter and ponderosa pine >9" in diameter from a majority of potential salvage units. Fuel reduction would occur on a total of 547 acres. Removal of all material greater than 5", excess to wildlife needs, would reduce the threat of snag fall during suppression activities. Fire intensity and severity would be reduced. This alternative would do the most to ensure that future high intensity fires were contained at 10 acres or less per occurrence, because all of the fire areas would be salvaged and total future fuel loading per acre would be reduced to less than 15 tons per acre.

*Alternative 3* - This action alternative would salvage fire-killed trees on approximately 471 acres. Whole Tree Yard (WTY) or Leave Tops Attached (LTA) to the last log would be used on most salvaged acres to help relocate fuels to the landings. There would be approximately 33 Landings with a total of approximately 330 tons of fuel. Utilization of fuel in landing piles would be an option for disposal depending on markets and economics. Burning of landing piles would be used if utilization does not occur. If burning occurs, there would be approximately 2 tons of Particulate Matter 10 microns and less in size (PM 10) produced. Approximately 155 acres would be retained after salvage that would have a fuel loading in excess of desired (15 TPA) that are at least 10 acres in patch size. Brush Disposal funds would be collected from the salvage sale to dispose of the landings and pay smoke management fees. Oregon Dept. of Forestry Smoke Mgmt. Plan would be the guidance for prescribed burning.

Alternative 3 removes less material than Alternative 2. Areas that had low or variable mortality of trees were generally excluded from salvage. Alternative 3 also excludes an estimated 156 acres of moderate or high mortality from salvage and fuels reduction treatments. The EA units were located to break up large contiguous areas that would have large fuel loads in the future. Within the EA units 2 and 6B, future potential fuel loads would be reduced to between 10 to 15 tons per acre. Some acres of moderate to high mortality not included for salvage would have up to 80 tons per acre of fuel loading within the next 10 to 20 years. However, when combined with areas proposed for salvage and areas of low mortality within the fires, which were excluded from salvage, the largest contiguous area is approximately 25 acres in size. Overall, future fire intensity and severity would be reduced and it is likely that future high intensity fires would be contained at 10 acres or less per occurrence.

*Cumulative Effects* - The cumulative effect on air quality from the prescribed burning of the landing piles is negligible. A study of emissions in the Central Oregon area found slash burning to contribute less than 1% (0.34%) of PM. The same study found that slash burning also produced less than 1% (0.64%) of the carbon monoxide in Central Oregon (CAB, 1997). Cumulatively, air quality has been improving in the Bend airshed over the last decade. Burning of residue piles would only occur in if existing and forecasted conditions assured that smoke would not enter any adjacent communities.

All alternatives create measurable amounts of dead and down woody residue. Decomposition of small diameter forest residues (<5") in this area is a 10 to 15 year process. The action alternatives include fuel treatments that dispose of the residues created by vegetation management and salvage of the dead trees.

It is likely that thinning would take place during the next 20 years within the fire and subbasin, possibly adding more material to the fuelbed. Adequate fuel treatment that disposes of the residue created by the future management activities would mitigate any cumulative effect. Overall, there would be a downward trend in the amount of fuel loading and fire risk if the action alternatives were implemented.

### **Soil Productivity Maintenance and Restoration**

*Existing Condition* - This landscape has been shaped by glaciations and volcanic activity. Soils in the area have developed in pumice ash deposits from Crater Lake, which overlay older lava flows. Depth to bedrock is generally 24 to 60 inches. Mean annual precipitation in the burn area is estimated to be between 20 and 35 inches (Larsen 1976). Most of this precipitation occurs as snow. No perennial streams or water bodies occur in the project area.

Soils in the area were mapped in the Deschutes NF Soil Resource Inventory (SRI) (Larsen 1976), Table 5. A map of the existing soil by condition class is displayed in [Figure 7](#). Note: A definition of condition classes A through D can be found below.

**Table 5: Soil types, Deschutes National Forest Soil Resource Inventory (Larsen 1976).**

Map Unit Number	Acres
65	283
67	235
70	179
82	2
LM (65, 74)	14

Mapping unit 67 consists of soils with a loamy sand texture that have a very rapid permeability and are well to excessively drained. Within the project area this landscape occurs on the lower toeslope of Round Mountain. Slopes are less than 30 percent and mostly in the 10 to 20 percent range. Aspect is NW and vegetation is a Mixed Conifer type (Voland 1985). Mapping unit 65 occurs on lava plains adjacent to mapping unit 67 but soils and vegetation in map unit 65 are similar to 67. Mapping unit 70 also occurs on lava plains and has soil textures, permeability's and drainage classes similar to map unit 65. Mapping unit 70 differs from map unit 65 in that it is in a lower landscape position subject to cold air drainage and it supports a Lodgepole Pine type (Voland 1985). Mapping unit 82 consists of soils on cinder cones with slopes ranging from 30 to 70 percent. Mapping unit 82 soils are identified as sensitive soils due to slope. No salvage treatments are proposed in the area of map unit 82 for any alternatives.

The existing condition of the soil resource has been influenced by past management activities within the

fire perimeter. Road-accessed selection harvests occurred from the 1950s through 1980s within the fire area. Log skidding and road building caused soil compaction and displacement. Since that time, thinning and regeneration treatments have occurred in portions of the fire and it was the presence of these harvested/thinned areas that caused the fires to drop to the ground from the canopy allowing them to be contained and suppressed. Effects of the fire on the soil resource include a mosaic of burn intensities (low, moderate and high) across this landscape (Table 6). Most of the organic litter layers on the soil surface were consumed in the fire. In areas that burned at a high burn intensity; organic matter in the mineral soil was also partially consumed, as evidenced by black charred material in the top one to three inches of the soil.

**Table 6: Approximate Percentage (%) of Burned Area by Burn Intensity.**

Low Burn Intensity Burn	20%
Moderate Intensity Burn	30%
High Intensity Burn	50%

Although areas within the fire burned at a high intensity, observations indicate that only minor amounts of the area (less than 2 percent) meet the definitions of detrimental burn intensity as described in the Region 6 Soil Quality Standards (FSM 2520).

Soils within the fire perimeter have varying amounts of detrimental soil compaction and soil displacement resulting from previous activities; primarily from logging of past decades, specifically the 1950's through 1980's. During the Cascade Lakes Watershed Analysis (USDA 1995) the Forest activity database, aerial photos, and soil disturbance monitoring were used to assess existing soil conditions. The existing condition analysis was broken up into four groups of disturbance classes defined as:

"A" class with none to slight disturbance (0 to 10% detrimental condition)

"B" class with light disturbance (10 to 20% detrimental condition)

"C" class with moderate disturbance (20 to 40% detrimental condition)

"D" class with heavy disturbance (>40% detrimental condition)

Acreages within the planning area by soil condition class and total percentage of area having detrimental soil impacts are shown in Table 7. Specific impacts include soil compaction, soil displacement, erosion, and soil affects caused by severe burn intensities.

**Table 7. Soil Condition Class and Calculated Area Within the Project Boundary.**

Soil Condition Class	Acres by Condition Class	% of Area in a Condition Class	% Area Impacted in Each Condition Class	% of Total Area Impacted
A	0	0	5	0
B	256	36	15	5
C	251	35	30	10
D	208	29	40	12
	Total 715			Total 27

The Region 6 Soil Quality Standards (FSM 2520) provides definitions for assessing conditions that can lower soil productivity. Detrimental soil impacts are those that meet the criteria described in the Soil Quality Standards.

*Direct Effects* - Under the No Action Alternative, existing levels of detrimentally compacted or displaced soil would remain the same. No biomass would be removed from the site providing maximum soil carbon and nutrient recycling. The risk of a wildfire would gradually increase over the next 20 years with the potential for moderate and severe impacts to the soil resource from a high intensity reburn.

Direct effects from Alternatives 2 and 3 would be some detrimental soil compaction and soil displacement, mainly on temporary roads, skidtrails and landings. Indirect impacts would be loss of soil productivity on temporary roads, skidtrails and landings. Since no mechanical post harvest fuel treatments are proposed, there would be no additional soil impacts during slash treatment following harvest. Soil compaction and displacement, caused by harvest operations that use ground-based equipment, account for the majority of the detrimental soil impacts on the Deschutes Forest. The percentage of area impacted varies with soil type, volume removed, and other factors. Forest effectiveness monitoring in previously harvested areas, has been used to estimate soil impacts in proposed treatments.

Alternative 2 would salvage an estimated 547 acres by removing dead ponderosa pine trees larger than 9 inches in diameter and all dead and dying lodgepole pine and white fir trees larger than 5 inches in diameter within EA units proposed for salvage, with whole tree yarding or leave top attached. In addition the alternative proposes leaving trees 15 inches in diameter and larger at 100% of the maximum population potential (MPP) for dependent birds where they are available. Soil productivity maintenance and restoration are addressed in this alternative by not removing the smaller diameter trees. Retention of this material on site avoids excessive travel of harvest equipment that could result in detrimental soil compaction and displacement in excess of Forest and Regional standards and guides. Leaving the smaller diameter trees also benefits the soil resource by providing some protection to soils from wind

and water erosion. In addition, retaining the additional organic material on site to be recycled into the mineral soil replenishes some of the mineral soil organic matter lost during the fire. Retention of trees 15 inches in diameter and larger at 100% MPP also addresses soil productivity maintenance and restoration by providing a future large wood recruitment source. This provides additional protection from soil erosion and also provides habitat for important soil organisms. This alternative would reduce available organic matter on site to between of 10 to 20 tons per acre (average 15 tons). This alternative would likely require soil restoration on 5% of EA Unit 1.

Alternative 3 would salvage an estimated 471 acres. Similar to Alternative 2, the salvage prescription would reduce the amount of woody material left after harvest to within the desired levels of 10 to 20 tons per acre. Under Alternative 3, an additional estimated 76 acres of moderate or greater mortality stands would not be salvaged, reducing the amount of detrimental soil displacement and soil compaction to within Forest Plan Standards. Treetops would be retained in areas where the fire burned at high intensity. Alternative 3 salvages an estimated 66% of the fire area, which modestly reduces effects on soils. Effect on soils from future fires has been addressed by the elimination of large areas of contiguous fuels that would limit or prevent suppression options.

Alternative 3 focuses treatments by avoiding some areas that were proposed for treatment in Alternative 2 (Proposed Action) to emphasize wildlife habitat management and to avoiding areas to reduce soil impacts. To be more responsive to soil productivity maintenance and restoration, areas with mortality less than 50% were excluded from salvage activities (outside of light underburn zones where overstory ponderosa pine survived). In Alternative 3, Unit 6A has mortality less than 50% and would not be treated; this addresses soil productivity maintenance and restoration by avoiding entering such areas. This lowers the risk of repeated entries into these areas in the near future. The area avoided from salvage for all objectives, including wildlife and soil objectives, amounts to a total of 34% of the project area.

*Cumulative Effects* - The cumulative effect of repeated entries over a long period of time is identified in the Forest Plan as having the greatest potential for lowering forest soil productivity. While competing objectives from other resource areas prefer less than full harvest treatments in many areas, the trade-off of increased impacts to the soil resource needs to be considered. Other factors associated with the action alternatives help to preserve soil productivity. Increased levels of fire suppression and prevention over the past 70+ years have resulted in reduced fire frequency in the project area, when compared to historic levels. The changes mean these soils are more productive than they were historically because nutrients and organic matter build up and are retained, rather than being partially oxidized in periodic fire episodes. When wildfires do occur on these sites, however, fire intensity and duration are outside of the naturally occurring fire regime (i.e., burning every 100 years rather than on a 10 to 15 year cycle). These fires usually result in excessive loss of soil nutrients and organic matter, compared to effects of more frequent lower intensity fires. By treating areas to lower fuel loading the effects of future fires may be reduced.

Alternative 3 would have the least cumulative effect on the soil resource over the long term by reducing the potential for future high intensity fires, by retaining adequate amounts of coarse woody material to facilitate organic material recycling and by minimizing the amount of disturbance and restoration within

the fire area.

*Soil disturbance* - Soil nutrient levels and soil organic matter levels are now lower in areas that burned at the high burn intensity than they would have been historically because this fire burned outside a historic fire regime (i.e. at a higher burn intensity than historically) (McNabb 1990). If the area is salvaged, future soil organic matter can be provided by leaving a minimum of 15 tons of woody material per acre where it exists (Graham 1994).

Due to the lack of soil cover that would otherwise be provided by vegetation and organic material on the soil surface and hydrophobic soils, the burned area is now susceptible to accelerated soil erosion from an intense rainstorm (FSM 2520). This type of soil erosion was observed in the Newberry II burn during the summer of 2001 (Deschutes NF, Soil Monitoring Reports). This condition would persist for several years until adequate ground cover is established.

On the Deschutes, soil monitoring has shown that the majority of the detrimental soil disturbance occurring in burned areas occurs during the salvage operation rather than during the burn itself, monitoring has also shown that soil compaction and soil displacement account for the majority of the detrimental soil impacts (Deschutes NF, Soil Monitoring Reports; Adams 1981; Cochran 1985; Page-Dumroese 1993; Powers 1999). The percentage of area impacted varies with soil type, volume removed, as well as other factors. Salvage treatments typically result in detrimental soil conditions that are very close to exceeding Forest and Regional Standards and Guides, a minimum of 80% of an area not having detrimental soil impacts (LRMP 1991; FSM 2520). After salvage, soil restoration by subsoiling is typically done to reduce the amount of area of compacted soils (Craig 2000). This provides the conditions for the soil to recover back to its non-impacted condition; it also mitigates the hazard of soil water erosion by greatly increasing infiltration rates into the soil.

*Post-Harvest Fuel Treatments* - Fuels created by proposed treatments would not be treated by mechanical methods that would cause an increase in soil compaction or displacement. Excess fuels in commercial harvest areas would be reduced during the harvest treatment by whole tree yarding.

*Sensitive Soil Areas and Ground-Based Harvest Equipment* - A criterion for identifying soils sensitive to management is listed in the (Deschutes LRMP, Appendix 14, Objective 5). These criteria include slopes over 30%, frost pockets, seasonal or year-long high water tables, extremely rocky areas, and areas that have a high or extreme erosion hazard rating. In the project area, the sensitive soils identified were slopes exceeding 30%. This is a minor component, and these areas would be avoided.

*Effects (Common to all Action Alternatives, Direct and Indirect Effects)* - Direct effects from action alternatives would be some detrimental soil compaction and soil displacement mainly on temporary roads, skidtrails and landings. Indirect impacts would be loss of soil productivity on temporary roads, skidtrails and landings.

*Cumulative Effects by Alternative* - Alternative 1 (No Action) would result in no additional land

becoming detrimentally compacted or displaced from harvest operations. No biomass would be removed from the site providing maximum soil carbon and nutrient recycling and maximum protection from accelerated soil erosion. The risk of wildfire would increase as materials fall over and new vegetation emerges, with the potential to impact the soil resource in the future through severe burn intensities on soils.

## **Transportation System and Access Management**

*System Roads* - Roads within and adjacent to the planning area are in a suitable condition to facilitate planned activities. There is no planned reconstruction of roads associated with this planning area. Road maintenance to support planned activities would be minimal. Scope of work would likely include maintaining road surface (blading/shaping), drainage maintenance/repair, brushing of roadside material, and spot surfacing to attain stabilization of the roadbed.

*Temporary Roads* - Temporary roads are constructed for specific, short-term purposes such as logging spurs for a timber sale. In order to prevent low-level casual use, such roads and landings are decommissioned at the completion of their intended use. In Alternatives 2 and 3, due to the high density of the existing road system, the need for construction of temporary roads to access interior portions of salvage units is considered minor. Less than 2 miles of temporary road construction would be required. At the completion of the sale, all temporary roads would be decommissioned (Mitigation Measure #7).

*Road Decommissions* - Approximately 1.37 miles of roads within the Crane Prairie Complex area would be decommissioned under the Charlie Brown EA ([Figure 8](#)). Roads would be subsoiled, debris scattered throughout roadbed and the entrance bermed to discourage motorized travel.

**Table 8. Roads Subject to Decommissioning under the Charlie Brown EA.**

<b>Road Number</b>	<b>Miles within fire</b>
4040800	0.16
4255268	0.10
4255300	0.39
4255410	0.42
4256200	0.13
4256270	0.17
<b>Total miles</b>	<b>1.37</b>

## **Reforestation/Forest Health**

*Existing and Projected Condition* - Under Alternative 1, as the dead trees fall down over the next 5 to 15 years they would add to the fuel load and would greatly increase the chance of a high intensity surface fire that would kill any seedlings that had regenerated. The high down fuel load may also cause problems with successful regeneration of trees and may create worse problems associated with small animal damage to seedlings. There could be beneficial effects with increased fuels loads such as creation of a microclimate that would help retain soil moisture and provide some protection from big game browsing. Trees that survived the fire would have lowered resistance to insects and disease. Bark beetles would likely rapidly spread from the dead and dying trees to surrounding green trees within and adjacent to the fire perimeter. Since no removal of dead trees would occur, the resultant mortality of green trees from beetle attack could become more widespread within the vicinity of the fire area.

Natural regeneration would be relied upon for reforestation. Shrub species such as manzanita and ceanothus would likely regenerate first, not allowing other species to become established for an extended period of time. Where trees are able to regenerate, lodgepole pine would likely dominate because it is a fire associated species that has a relatively small seed that can be transported long distances by the wind in addition to seed surviving within cones of the fire killed trees. Ponderosa pine however is the preferred species for this area as it is commonly found within the mixed conifer plant association and it is a longer-lived species greatly more resistant to insects, disease and fires.

*Alternative 2* - This Alternative would salvage harvest and establish plantations to begin the reforestation process within the majority of burned late and old forest portions of the connectivity corridor to Round Mountain. Most standing dead material would be removed to reduce future fuels loads and to provide site preparation for plantation establishment. Future connectivity corridor development would take place in the form of new stand establishment from planting. In the short term, less standing dead trees would be present.

*Alternative 3* - This alternative would limit salvage harvest and plantation establishment within the majority of the burned late and old forest connectivity corridor to Round Mountain. One 10-acre portion of the burned late and old forest within the corridor would be salvaged and planted. The remaining 84 acres would be retained. Natural regeneration of grasses, forbs, shrubs and eventually trees would occur over time.

Both Alternatives 2 and 3 would plant ponderosa pine on portions of the fire (208 acres in Alternative 2; 144 acres in Alternative 3). By using planting as the regeneration method, seedling establishment would begin concurrently with shrub development and the preferred tree species would be established. Seedling tubing within salvage areas would be done to protect trees from big game browse damage and from being clipped off at the base by ground animals such as gophers. Gopher trapping or baiting would be done to minimize damage to planted seedlings. Trapping could cause a decrease in the prey species for some raptors and other predators, including marten. It presents a direct hazard only to those species small enough to use gopher burrows (Animal Damage Control Project EA (1994) and Animal Damage



Control EA Revision (1996)). Other effects for control measures are discussed in further detail in the two cited documents. The analysis incorporates all the applicable mitigation measures and effects found in these two documents. The effects of control measures on proposed areas in addition to the treatment areas found in the two documents would not change the discussed effects.

Alternative 3 would have a greatly reduced chance for a high intensity ground fire when compared to Alternative 1 but a slightly higher risk than Alternative 2 because it does not remove the dead and dying trees from an additional 76 acres of moderate or greater mortality. Removal of dead and dying trees under Alternatives 2 and 3 would reduce the chances for subsequent wide spread beetle mortality of green trees within and adjacent to the fire.

### **Proposed, Endangered, Threatened, and Sensitive (PETS) Species**

A Biological Evaluation for the area has determined that implementation of any of the alternatives would not effect any proposed, endangered, threatened, or sensitive (PETS) plant or animal species (See Wildlife BE Summary, above, and Appendix C., Biological Evaluations).

Proposed, Endangered, Threatened, or Sensitive (PETS) species considered in this evaluation are those listed in FSM 2670.4 R-6 Interim Directive No. 90-1, April 1999, (for plants) as suspected or documented to occur on the Deschutes National Forest (Appendix A). An analysis of effects on species viability found the following: *The project will not affect any Proposed, Endangered, Threatened, or Sensitive plant species.*

About one-quarter of the project area was surveyed for PETS plant species during the 1991 Sibun Timber Sale. (See Appendix C for a list of potential PETS plant species) No PETS plant species were located at that time. An April 1996 prefield review of the area for the Charlie Brown Project did not find habitat that would support any PETS plant species within the area of the Crane Prairie Complex.

No further field surveys were recommended.

*Direct, Indirect, and Cumulative Effects on PETS Plant Species - All Alternatives -* There would be no direct, indirect, or cumulative effects on any PETS plant species, because none were located within the project area.

*Direct, Indirect, and Cumulative Effects on PETS Plant Habitat for All Alternatives -* There would be no direct, indirect, or cumulative effect on PETS plant habitat because the area offers no potential PETS plant habitat.

*Noxious Weeds -* Forest Service Manual (FSM) direction requires that Noxious Weed Risk Assessments be prepared for all projects involving ground-disturbing activities. For projects that have a moderate to high risk of introducing or spreading noxious weeds, recent Forest Service policy requires that decision documents must identify noxious weed control measures that would be undertaken during project

implementation (FSM 2081.03, 29 November 1995).

Aggressive non-native plants, or noxious weeds, can invade and displace native plant communities causing long-lasting management problems. Noxious weeds can displace native vegetation, increase fire hazards, reduce the quality of recreational experiences, poison livestock, and replace wildlife forage. By simplifying complex plant communities, weeds reduce biological diversity and threaten rare habitats. Potential and known weeds for the Deschutes National Forest are listed in the Noxious Weed Report found in Appendix C.

The control and treatment of noxious weeds on the Deschutes National Forest have been assessed and are described in the Deschutes National Forest Noxious Weed Control Environmental Assessment, September 1998.

The No-Action Alternative (Alternative 1) would not affect the treatment and control of the known sites of noxious weeds within the project area, because they have been addressed in the Deschutes National Forest Noxious Weed Control - Environmental Assessment, September 1998. The No-Action Alternative may, however, contribute to the invasion of noxious weeds into areas within the project should native plants not re-vegetate before the area road closure is lifted. If access is granted to all vehicles before native plants have re-established, there would be a risk of noxious weed invasion.

**Action Alternatives:** The Crane Prairie Complex Project was given a HIGH risk ranking because there are known populations of spotted knapweed in the neighborhood of the project area. All proposed actions would include the use of heavy equipment and soil disturbance is likely. Because all ground vegetation has been destroyed by fire, there is an additional risk that noxious weeds could quickly invade the burned area. (See Mitigation Measures for reducing this risk.) Currently, the treatment and control of the known sites of noxious weeds is addressed in the Deschutes National Forest Noxious Weed Control - Environmental Assessment, September 1998.

*Survey and Manage* - One way the Northwest Forest Plan requires the Forest Service to address late-successional forest ecosystem function is through consideration of "Survey and Manage" species associated with this ecosystem. These are selected species of fungi, lichens, bryophytes, vascular plants, and invertebrate animals whose viability are of concern within this broad ecosystem type.

The November 2000 FEIS identifies six categories into which species are grouped. In order to fall into one of these categories, the species must meet three basic criteria:

1. The species must occur within the Northwest Forest Plan area, or occur close to the NFP area and have potentially suitable habitat within the NFP area.
2. The species must be closely associated with late-successional or old growth forest.
3. The reserve system and other Standards and Guidelines of the NFP do not appear to provide for a reasonable assurance of species persistence.

All six categories contain a requirement to conduct "strategic surveys", which is something separate from project-level surveys and is not required to be addressed in this document.

Specific habitat information on Survey and Manage species is becoming better understood as species-specific surveys are conducted and data is compiled and compared. However, many habitat descriptions are based on relatively few records and would continue to be scrutinized and refined as new sites are discovered.

Considered are those species from the vascular, bryophyte, lichen, and fungi plant groups identified in the Final Supplemental Environmental Impact Statement (FEIS): *For Amendment to the Survey & Manage, Protection Buffer, and other Mitigation Measures* released in November 2000, as amended by the Record of Decision signed in January 2001. This SEIS modifies the Survey and Manage and related mitigation measures outlined in the 1994 Northwest Forest Plan Final SEIS.

*Summary of Findings* There are no expected direct, indirect, or cumulative effects from the implementation of any alternative, because there are no Survey and Manage sites or habitat located within the proposed project.

Vascular Plants - There is no habitat present within the project area for *Botrychium minganense* and *B. montanum*, the two grape-fern species that require pre-disturbance surveys if habitat is present. Additionally, there are no known sites present within the project area for these species that would, according to FEIS direction, require management of those sites.

Non-Vascular Plants - Bryophytes There is no habitat present within the project area for either *Schistostega pennata* or *Tetraphis geniculata*, the two moss species that require pre-disturbance surveys if habitat is present. Additionally, there are no known sites present within the project area for these species plus three others, *Buxbaumia viridis*, *Marsupella emarginata var. aquatica* and *Tritomaria exsectiformis*, that would, according to FEIS direction, require management of those sites.

Lichens - There is no habitat present within the project area for the one lichen, *Pseudocyphellaria rainierensis*, that requires pre-disturbance survey if habitat is present. Additionally, there are no known sites present within the project area for this species that would, according to FEIS direction, require management of those sites.

Fungi - There is no habitat present within the project area for the one fungi species, *Bridgeoporous nobilissimus*, that requires pre-disturbance survey if habitat is present. Additionally, there are no known sites present within the project area for this species or the five other species (*Bondarzewia mesenterica*, *Otidea leporina*, *Otidea smithii*, *Polyozellus multiplex*, *Sowerbyella rhenana*) that would, according to FEIS direction, require management of those sites.

Survey - The Crane Prairie Complex Project falls within the larger Charlie Brown Project that was reviewed for Survey and Manage (S & M) plant survey in 1998. Areas of potential habitat for S & M

plant species within the Charlie Brown Project were surveyed during 1998 and 1999. A small part of Crane Prairie Complex unit #6 was surveyed 22 October 1999 as part of Charlie Brown unit FT 25. No S & M plant species were located within that unit. The survey form is on file at the Bend/Ft. Rock Ranger District office. A field review in October 2001 of the Crane Prairie Complex Project revealed no remaining S & M habitat.

### *Summary of Effects*

*Alternative 1* - There are no expected direct, indirect, or cumulative effects in this alternative, because there are no Survey and Manage sites or habitat located within the proposed project.

*Alternatives 2 and 3* - Direct, Indirect, and Cumulative Effects: There are no expected direct, indirect, or cumulative effects from the implementation of either alternatives, because there are no Survey and Manage sites or habitat located within the proposed project.

### **Fisheries**

There are no ephemeral, intermittent, or perennial streams, nor lakes, reservoirs, Riparian Reserves, or riparian areas within the Crane Prairie Complex Fire area. The nearest Riparian Reserve is approximately 1.5 miles to the west of the area.

*Alternative 1* - The No Action alternative would have no direct effects to fisheries populations, fisheries habitat, or water quality. Under this alternative, there is potential for indirect effects. Fuel levels would remain high in the project area, which could contribute to high intensity fires in the surrounding forest. A large fire spreading to the west from the project area could reach the Riparian Reserves of the Deschutes River, North Twin Lake, Crane Prairie Reservoir, and an unnamed lake near North Twin. Anticipated adverse effects from a fire burning within the Riparian Reserve of the Deschutes River or the lakes are: 1) short term increase in water temperature; 2) loss of shade which would lead to a long term increase in water temperature; 3) loss of long term large woody material (LWM) recruitment; and 4) increased overland flow of sediments. The Oregon Department of Environmental Quality lists the Deschutes River as a water quality impaired stream (303(d) list). The parameter for which it is listed is high summer water temperatures. As discussed above, there is potential for this parameter to be adversely affected.

A potential benefit of a fire within the Riparian Reserve would be short-term increase in LWM to provide fish hiding cover, complexity, and invertebrate habitat.

*Alternatives 2 and 3* - There would be no effects, adverse or beneficial, to fisheries populations, fisheries habitat, or water quality from implementation of either of the Action Alternatives. The distance (>1.5 miles) from water bodies and Riparian Reserves, and the gentle slopes between the project area and the water bodies and Riparian Reserves precludes any potential effects. There would be no adverse effects to the 303(d) listed Deschutes River, nor would there be any adverse effects to Essential Fish Habitat.

## **Heritage Resources**

The Crane Prairie Complex area is within ceded lands for the Confederated Tribes of Warm Springs according to the Middle Oregon Treaty and the treaty boundaries as depicted in the Royce Indian Land Cessions circa 1778-1883. The Bend-Ft. Rock Ranger District is responsible for protection and management of the Tribe's cultural resources and materials as part of the trust responsibilities.

Government to government consultation with the tribes has been occurred with the tribes for the Charlie Brown EA. No special concerns about Tribal resources were identified. It is acknowledged that the Tribes may have lost the verbal history and they may not know where desired plant species and resources may be found. This affects their ability to tell Federal agencies where Tribal trust resources can be located on Federal lands.

An appropriate inventory was conducted for the Charlie Brown EA to determine properties eligible for the National Register for Historic Places (NHRP). All evaluated and unevaluated sites would be avoided; therefore, the undertaking meets the criteria given in Stipulation III.B.1 of the Programmatic Agreement among the USDA Forest Service, the Advisory Council on Historic Preservation, and the Oregon State Historic Preservation Officer. There would be no known direct, indirect, or cumulative effects to these resources.

A field investigation and literature review of the project area was conducted. None of the alternatives would affect any listed or eligible cultural or historic resources (Appendix K.).

## **Recreation**

*Existing Condition* - In general, those seeking a dispersed recreation experience visit the Round Mountain area. Most of the use comes in the summer camping season and fall big game hunting seasons. The most popular activities include: big game hunting, driving for pleasure and sightseeing. Due to the type of recreation activities available at Round Mountain, it is believed that it is not a primary destination for visitors or recreationists. As such, recreation use is short-lived (day use) and levels are low.

Most of the roads in the area are not maintained for passenger vehicles, which limits access to some of Round Mountain to off-road vehicles with high clearance. Driving for pleasure generally occurs along the perimeter at the mountain itself, where views of large ponderosa pine and wildlife can be found, and the roads are in better condition. There are no developed recreation facilities on or directly adjacent to Round Mountain. The nearest are at the Twin Lakes and Wickiup and Crane Prairie Reservoirs.

After the Crane Prairie Complex Fire, the appearance of the forest landscape on the west side of the mountain has changed. This would effect how the area is used in the immediate future. Some visitors would be curious about the fire's affect on the landscape and would venture here simply to see the

charred landscape. Others would use the changes in the vegetation during big game hunting season as deer and elk utilize the burned area.

In general, the fire and subsequent salvage operations would have little to no affect on the recreation opportunities available in the vicinity of Round Mountain.

## **Economics**

Based on the 1995 Timber Sale Program Information Reporting System, Alternatives 2 and 3 would support 29 jobs and 26 jobs, respectively, for one year. Alternative 2 would return an estimated \$201,000, with a benefit/cost ratio of 1.66, to Deschutes County and the Federal government for roads, schools and general revenue while Alternative 3 would return an estimated \$213,000 with a benefit/cost ratio of 1.92 (Appendix F). Alternative 1 would not support any direct jobs or revenue.

No attempt was made to place a value on the benefits to wildlife that would occur with reforestation of the fire or with leaving habitat for cavity-dependent species. Environmental analysis activities through completion of this National Environmental Policy Act document are estimated at \$25,000.

## **Consumers, Civil rights, Minority Groups and Women**

Effects on consumers, minorities and women are within the scope of effects described in the Final Environmental Impact Statement for the Deschutes Land and Resource Management Plan (8/90). Vegetation management activities have historically provided employment for women and minorities.

## **Public Health and Safety**

Proposed activities in all alternatives would maintain public safety within the fire perimeter by reducing the risk of snags reaching the motoring public, as the fire area is currently under a road closure (see [Figure 9](#), Map of Area Closure). Alternatives 2 and 3 would improve public health and safety by reducing the risk of entrapment and snag contact following salvage harvest, reforestation, weed monitoring and lifting of the area closure order. These Alternatives would also reduce the risk of future evacuations of Round Mountain Lookout due to high-intensity wildfire threatening the lookout, and would protect the evacuation route should the lookout become threatened by wildfire. The effects of implementation of any of the alternatives are well known, not highly controversial, and do not involve any unique or unknown risks. Effects from the alternatives meet or exceed state water and air quality standards. All other proposed activities would not expose the public to an elevated risk of injury to hazards associated with routine forest practices such as tree felling, road maintenance, and operation of mechanized equipment that is regulated by the Oregon Occupational Safety and Health Division.

## **Civil Rights and Environmental Justice**

Civil Rights legislation and Executive Order 12898 (Environmental Justice) direct an analysis of the

proposed alternatives as they relate to specific subsets of the American population. The subsets of the general population include ethnic minorities, disabled people, and low-income groups. The purpose of this analysis is to determine whether adverse civil rights impacts are anticipated on an underrepresented population. The analysis is to also determine whether disparate or disproportionate impacts associated with the alternatives is anticipated. One primary purpose of the action alternatives is to provide for human health and safety of all members of the public by reducing the risk of falling snags along travel ways, as well as reducing the risk of entrapment by wildfire. Provision of these benefits does not discriminate between subsets of the general population. With this project, there is no known potential for disparate effects. For these reasons, Alternatives 2 and 3 would not pose disproportionately high or adverse effects to minority communities or to low income groups.

### **Other Effects and Findings**

The alternatives are consistent with the goals, objectives and direction contained in the Deschutes Forest Plan and accompanying Final Environmental Impact Statement and Record of Decision dated August 27, 1990 and the Northwest Forest Plan (1994) as amended by the Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines dated January 2001. The alternatives are in compliance with relevant Federal, State and local laws, regulations, and requirements designed for the protection of the environment. None of the alternatives establishes a precedent for future actions, nor decisions in principle about a future consideration.

No designated roadless areas, old growth stands, Pacific Yew or habitat, prime farm land, Wild and Scenic rivers or park land would be adversely affected by the proposed activities because none exist within the EA units proposed for vegetative treatment. Wetlands, fisheries, water quality and designated floodplains would not be adversely effected by any of the proposed management activities because none exist within or adjacent to the fires. No significant irreversible or irretrievable commitment of resources would occur under Alternatives 2 and 3. There would be an irretrievable loss of firm wood fiber under Alternative 1, as existing dead white fir, lodgepole pine and ponderosa pine trees deteriorate in value.

Vegetation management activities proposed are consistent with the Record of Decision for the Final Environmental Impact Statement for Managing Competing and Unwanted Vegetation and the subsequent Mediated Agreement of 1989 (Refer to Appendix D for further information and a discussion of other NFMA findings).

### **Compliance with State and Local Laws**

Implementation of all alternatives would be consistent with State and local laws, land use, and environmental policies. Alternatives 2 and 3 follow State of Oregon requirements in accordance with the Clean Water Act for protection of waters. Protection of water quality, although specifically not applicable to this project area, is afforded by incorporation of Best Management Practices (BMPs) in timber sale contract provisions, prescribed burning plans, Oregon Department of Environmental Quality

oversight for recreational facilities, and direction for road maintenance standards.

### **Reasonably Foreseeable Future Actions Within and Adjacent to the Project Area**

**Charlie Brown Environmental Assessment (EA):** Proposes a range of vegetation treatments, modification of some dispersed camping, including access to address water quality and improve wildlife habitat in the vicinity of Wickiup and Crane Prairie Reservoirs. The planning area is roughly 65,000 acres, including reservoirs. Treatments would occur over 8,000 acres, consisting of tree culturing, dwarf mistletoe reduction, young stand thinning, and various treatments to lower wildfire risk and restore forest resilience. This project is currently being publicly reviewed with a 30-day comment period.

**Sheep Bridge Campground Environmental Assessment (EA):** Designated approximately 22 campsites and parking for day users and boaters. Travel surfaces are designed to reduce dust. Vegetation would be planted to restore loss of vegetation and to provide screening between campsites. This project is currently being implemented.

**West Twin Lake EA:** Constructs an amphitheater, fish cleaning station, expands parking and replaces a restroom.

**Twin Lakes Resort Drain Field Project Categorical Exclusion (CE):** Authorizes the addition of approximately 1,000 feet of drain field, septic tank, and grease trap at Twin Lakes Resort to upgrade the overall septic system for the facility. This project has been completed.

**Cascade Lakes Overlay Project EA:** The Federal Highway Administration has completed overlaying asphalt on approximately 30 miles of Cascade Lakes Highway from Elk Lake to Davis Lake. The project included some culvert replacement and/or extension.

**Cascade Lakes Scenic Byways CE:** A project is proposed which would construct three sites to provide visitor orientation and interpretation on the Cascade Lakes Scenic Byway: the North Portal Entry located five miles west of Bend, the South Portal Entry located two miles east of the junction with county road 61, and the Elk Lake Guard Station. In addition, parking areas and entry roads would be paved, interpretive signs added, and a toilet relocated to enhance the Blue Lagoon Trailhead and Osprey Point/Quinn River interpretive site. This project has a signed decision but has not been implemented.

**East Browns Quarry Restoration Project CE:** Restoration activities have been completed for East Browns Quarry, including creation of wet meadow habitat, 1.5 acres of seasonal pond habitat. An interpretive parking and trail area has not been completed.

**Wickiup Reservoir Fish Habitat Restoration CE:** Selectively places 100 trees weighted with boulders into Wickiup Reservoir near Sheep Bridge Campground. The objective is to improve: 1) hiding cover for both rearing and migrating fish, and 2) increase invertebrate (insects) production to provide forage. This project has been completed.



**Riparian Planting Project CE:** Activities have been completed, include restoration of a vehicle pullout and user-made trail by placing boulders and planting riparian vegetation at Browns Creek where road 4280 crosses. This project has been completed.

**Hosmer Lake EA:** Reduces the effects of human activities to wetland and wildlife habitats by closing approximately 3-4 sites or moving some campsites away from riparian buffers as well as improving vehicle parking and restrooms. This project has a signed decision but has not been implemented.

**Cultus Demo EA:** Proposed actions include thinning, fuels reduction, and prescribed burning on 455 acres surrounding Cultus Lake. This project does not have a signed decision.

**Wickiup Safety of Dams Project EA:** Modifications to Wickiup Dam are proposed by the Bureau of Reclamation to correct safety deficiencies. The modifications are designed to add stability to foundation and embankment materials during seismic events, and include construction of a filter blanket and stability berm along the downstream toe of the dam. An identified site to be considered for source materials is located within the reservoir area near the dam. This project is currently being implemented over the next two years.

**Seven Buttes Return EA:** Proposes a range of management activities on the Crescent Ranger District to maintain or restore forest health conditions within a 160,000-acre planning area. Treatments would occur over approximately 16,000 acres and would consist of tree culturing, thinning from below, thinning of young stands, and various treatments designed to lower the risk of wildfire and restore forest resilience. This project is currently being publicly reviewed with a 30-day comment period.

**Dilman EA:** Proposed actions to implement the Upper Deschutes Wild and Scenic Plan would reduce the number of existing dispersed camping sites from approximately 73 sites to 31, close approximately 63 miles of roads, resurface road 44 and maintain access to Bull Bend and Wyeth campgrounds, armor the stream crossing at road 4370, prescribed burn or mechanically treat shrubs on 1050 acres, and thin 2760 acres of trees to reduce risk of stand replacement wildfire and for forest health. This project is currently being publicly reviewed with a 30-day comment period.

**Deschutes River Bioengineering Project EA:** Nearly 1,000 feet of riverbanks are currently undergoing restoration using native materials such as large trees, sedges, and willows to be completed by May 2002. The project area is 1/4 mile downriver from Wickiup Dam.

## GOTO

- [Purpose and Need](#)
- [Alternatives](#)

- Environmental Effects
  - [Participants and Consultation](#)
- 

[Deschutes and Ochoco National Forests Website](#)

<http://www.fs.fed.us/centraloregon/manageinfo/nepa/documents/bendfort/cranecomplex/crane-ea3effects.html>

Last Update: 12/4/01

R.A. Jensen

# **Crane Prairie Complex Environmental Assessment**

## **Bend/Fort Rock Ranger District**

### **Deschutes National Forest**

#### **IV. CONSULTATION WITH OTHERS**

Public scoping for this project began with the mailing of the proposed action to the public on September 10, 2001 (Appendix G., pages G-1 to G-3). The list of organizations and people who were notified by letter, phone or in person regarding this proposed project is included in district files. The organizations or persons responding to the proposed action are listed in Appendix G, and a summary of their response as well as a short narrative which details how the ID team addressed the recommendation or concern is included in Appendix N.

#### **Interdisciplinary Team**

- James Lowrie - Wildlife Biologist
- Pat Joslin - Botanist
- Les Moscoso - Recreational Planner
- Gini Stoddard - Geographic Information Specialist
- Lucy Hamilton - Archeologist
- Jim Schlaich - Presale Forester
- Steve Bigby - District Road Manager
- Dale Birch - Fire/Fuels Specialist
- Terry Craigg - Soil Scientist
- Bill Peterson - Silviculturist/Writer-Editor
- Thomas Walker - Fisheries Biologist
- Marcy Boehme - Writer/Editor

#### **Agencies Contacted and Persons Consulted**

- Jeffrey Dillon - US Fish and Wildlife Service
- Dede Steele - US Fish and Wildlife Service
- Glen Ardt - Oregon Department of Fish and Wildlife

#### **GOTO**

- [Purpose and Need](#)
  - [Alternatives](#)
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- 

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<http://www.fs.fed.us/centraloregon/manageinfo/nepa/documents/bendfort/cranecomplex/crane-ea4others.html>

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R.A. Jensen